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ART AND LITERATURE IN THE MENTALLY ABNORMAL.

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The subject which I have chosen is one of considerable extent, and cannot in this place be presented otherwise than in an abstract.

The observations reviewed in this paper were commenced at the Middletown State Hom. Hospital, and later extended among several of the other New York State hospitals and various institutions for the feeble-minded, epileptics and insane criminals. The observations are principally a contribution to the study of the effects of various forms of insanity on those psychical powers which are concerned in artistic or literary manifestations; and, in the second place, this study is largely a study of the delusions of the insane.

One cannot expect very much artistic or literary attainment in any class of individuals who have not received a sufficient education. Although inborn talents can and do occasionally manifest themselves in uneducated persons, yet there are very few who can become artists, authors or poets without having undergone a thorough training in these subjects. It can be stated beforehand, that we but seldom see a manifestation of any high inherent talent among the mentally abnormal. The insane or the epileptic genius is a thing largely of romance, or, at least, is not to be found in the State institutions for these classes of patients. What we do find and can study in our hospitals and asylums for the mentally abnormal, is principally the artistic and

literary manifestations of persons who acquired more or less of these qualities by education while in their normal state, and, in one or two classes of patients, the results of training within the institution. Thus the study of art and literature among the various classes of mentally abnormal resolves itself principally into a study of the effects of the various abnormal mental conditions on the previously acquired abilities of the individual, and, additionally, into a study of what can be effected by training with some classes of patients in these conditions.

Among the different classes of the mentally abnormal individuals, by far the largest amount of higher culture can be found in the insane, and, *a priori*, this class of patients would be expected to yield the largest proportion of the manifestations of both art and literature. For example, from among 2127 cases admitted into Middletown State Hom. Hospital since October 1, 1888, up to October 1, 1895, 322, or 15 per cent. have received academic or collegiate education.

Among epileptics education is frequently deficient, and a higher education is rare. This is due to the fact that in many cases epilepsy develops so early that it interferes with advanced education.

Among insane criminals or convicts, especially among the men, education in general is of a lower standard than that of the ordinary insane, and it seems to me to be in average lower than we find it among the "sane" criminals.

According to the thirty-eighth (1897) report of the Matteawan State Hospital, the education of the inmates of this hospital admitted within the last 38 years was as follows (the data comprise both the insane convicts and the criminal insane):

Degree of education of cases admitted in the Matteawan State Hospital since the opening February 2, 1859.

Degree of education.	Men.	Women.	Total.	
Academic	31	6	37	} 2.68 per cent.
Collegiate	16	1	17	
Common School	582	28	610	} 75.1 per cent.
Read and write	856	46	902	
Read only	109	5	114	} 18.37 per cent.
No education	247	9	256	
Unascertained	73	5	78	
Total	1914	100	2014	

Among the criminal *insane*, who form throughout a distinct class from the insane *criminals*, the education is on about a similar standard as that found with similar types of the insane as ordinarily met with. [In this paper, wherever insane criminals are mentioned, the term shall be understood to be restricted to individuals who became insane, so far as known, subsequently to their crime.]

In the idiots and the feeble-minded education is very deficient or entirely absent.

The main cause why the insane receive frequently a higher education than other mentally abnormal persons is the fact that their derangement in most cases does not develop until the time when a good education could have been more or less completed. Besides this, the insane come frequently from good families, and they also not uncommonly show, especially in their youth, good intellectual qualities.

Not all the divisions of the insane include the same percentage of educated persons. Among 400 insane which I examined in this respect in the Middletown State Hospital, I found the following proportions of persons with none or but very little schooling, according to the different classes of insanity: In

- (1) Paranoia, male, 5 per cent.; female, 13 per cent.
- (2) Acute melancholia, male, 21.5 per cent.; female, 6 per cent.
- (3) Chronic mania, male, 17 per cent.; female, 24 per cent.
- (4) General paresis, male, 20 per cent.; female, no case.
- (5) Chronic melancholia, male, 23 per cent.; female, 20 per cent.
- (6) Acute mania, male, 50 per cent.; female, 43 per cent.

In terminal dementia the proportion of uneducated individuals is very large, and the same is true of those epileptics who are cared for in the hospitals for the insane; but it is very difficult to ascertain the real percentages in both these classes of patients. These patients have but little mind left to reliably inform us themselves, and their records are frequently deficient, owing to their coming from county houses or other places where their individual history was not known or kept.

The least proportions of uneducated persons, it will be noted from the above figures, which, however, I should not like to present as typical, are found among the paranoiacs, among the acute melancholiacs, the chronic maniacs, and the general pa-

retics. Now as to artistic and literary manifestations among the insane, the largest majority of the cases where such manifestations are observed belong either to the group of paranoiacs or to that of chronic maniacs. We find these manifestations least frequently in the parietic dementes, in the terminal dementes, and in individuals with the very acute forms of insanity.

In the first stage of his disease the general parietic will frequently carry to excess any talents which he may possess; but he soon becomes restless and incoherent and incapable of prolonged application to any one object.

The melancholiacs, both acute and chronic, have generally too many personal troubles to occupy themselves with, to be able to think of art or literature; yet one may occasionally make an attempt in one of these directions; he may compose, for instance, tolerably good poems, as I could demonstrate by examples.

The acute maniac, even if inclined to art or literature, will never produce anything but a more or less shapeless, incoherent mess.

A few of the terminal dementes, curiously, preserve a fair degree of artistic ability; but these are only exceptional cases.

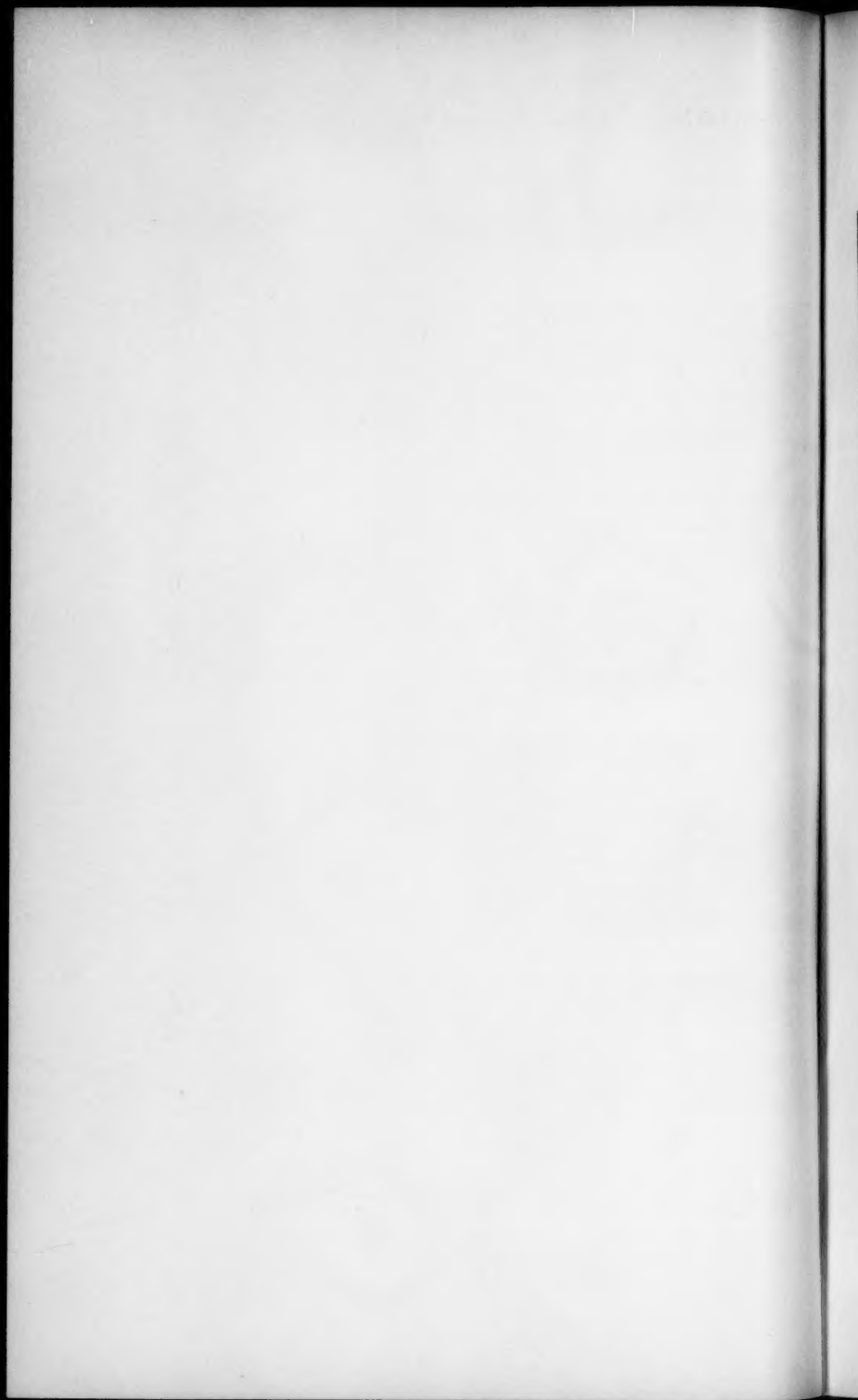
The inclination to art manifests itself in the insane principally in drawing and in music, and occasionally also in attempts at decorative work or in construction.

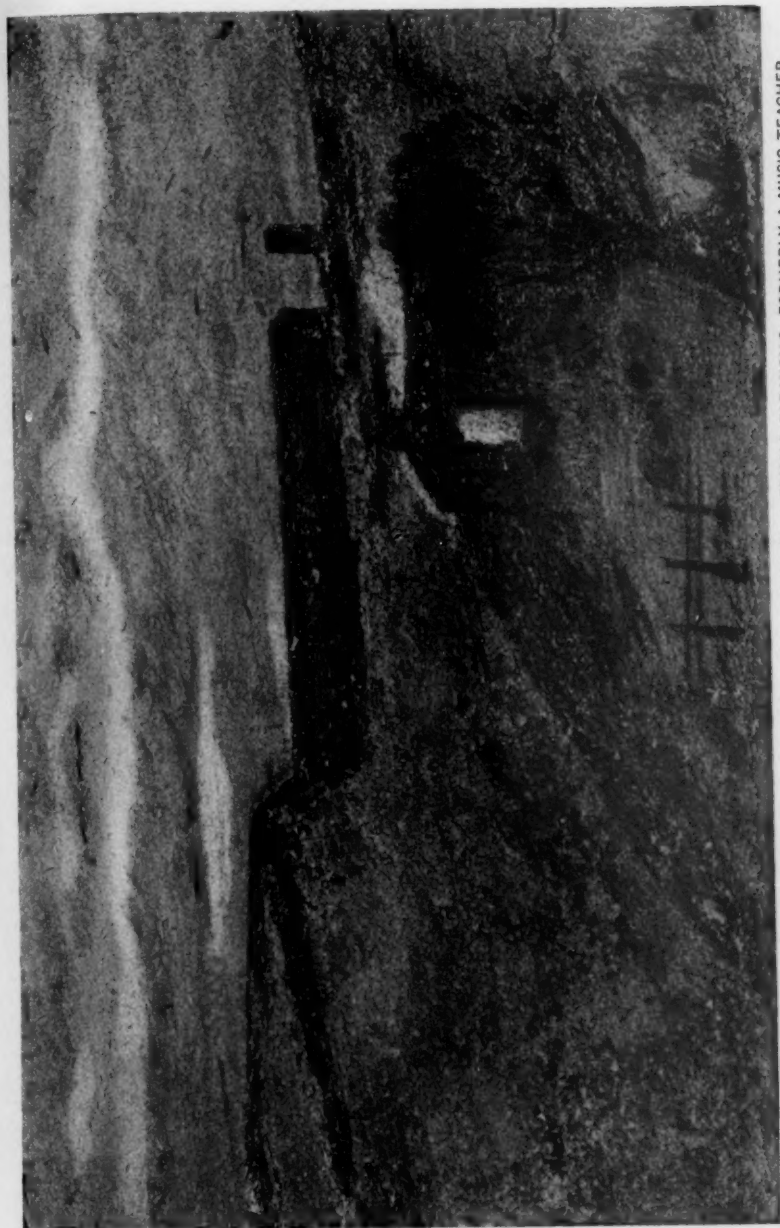
The degree of art attained by the insane of any class is never very great, and it is safe to say that it is always below what the person was capable of before becoming insane.

The drawings which the insane make have frequently peculiar characteristics of their own. One of the most common of such peculiarities is that the drawings are mostly of a symbolical or an allegorical nature. The objects on the drawings are often supernatural; intercalated faces are very frequent; some of the figures are liable to represent fabulous creatures, either human or animal. Mysterious objects, secret signs, letters and strange words, are not uncommon in the pictures. Religious objects are frequent, and a few patients indulge in obscene drawings. We also have several individuals in the State hospitals who occupy themselves principally with drawing designs of perpetual motors; and a few others who manufacture paper money, usually of substantial denominations. (Vide Plates I to III.)



DRAWN BY A FEMALE PARANOIAC, UNTRAINED, AT MIDDLETOWN STATE HOMEOPATHIC HOSPITAL, N. Y.
Patient represents graphically some of her delusions about children.





(FROM THE MIDDLETOWN STATE HOMEOPATHIC HOSPITAL, N. Y.) DRAWN BY A FEMALE PARANOIAC, FORMERLY A MUSIC TEACHER. Represents a scene from the Southwest, a desolation. Patient unapproachable and will not give any explanation about her drawings, all of which are of similar character to this one.

1879-1900

Lord's Day 11th Feb 1912 11898181219
The Lord's Mail "one mighty" 188 (or
my (not given) not-protected premises!

to the Lord! without which approval
your deeds are valueless! - nay!
may be the very evidence I need to
convict you is your criminal & L
before Manland, God!
Hums in God,
God in God, on God,
The Lord's Mail.

evils! call the Long Island State Hospital!
11898181 and who authorizes you! People!
"long" whoever obstructs your passage to see me!

Why! O People! Why died -
my boy Emmanuel! You must
know! You must learn all the facts!
touching the cause of his death!

14. I wasp b - i wuching | dazendt fo xat 88
I wuz b - i wuching | dazendt fo xat 88
I wuz b - i wuching | dazendt fo xat 88
I wuz b - i wuching | dazendt fo xat 88
I wuz b - i wuching | dazendt fo xat 88

Here I and see I and take

Text Available Standard 1
of Sanitary and Hygiene 28.1

With the Lord's Mail / in vinculis / in manus

O People! The only fearful title / and
Deed to the Lord / I come to off the
Lord / even as children / and the
fruit of the womb / in heritage /
and gift / that come to off the Lord /
Heaven ye not!
To the specified / the individuals / who have
intrenched themselves / Right in both
the Church and State / and who -
worse than / wickedly / secretly /
only through invasion / plunder / and
murder / saying / "The man / who -

Geophagy! There shall not
remain / of this Nation /
one stone / standing upon
another / I will surely destroy
it / with the Lord is (God).

DRAWN AND WRITTEN BY A MALE PARANOIAC AT THE LONG ISLAND STATE HOSPITAL, N. Y.

Patient has principally religious delusions. He was an amateur artist before becoming insane. Writing incoherent; flourishes about letters.

was in God! Dear Sir, Jackson (Gton)
says! Let Bull & prisoner upon himself
the Lord's name's (Coptic and Grounder).

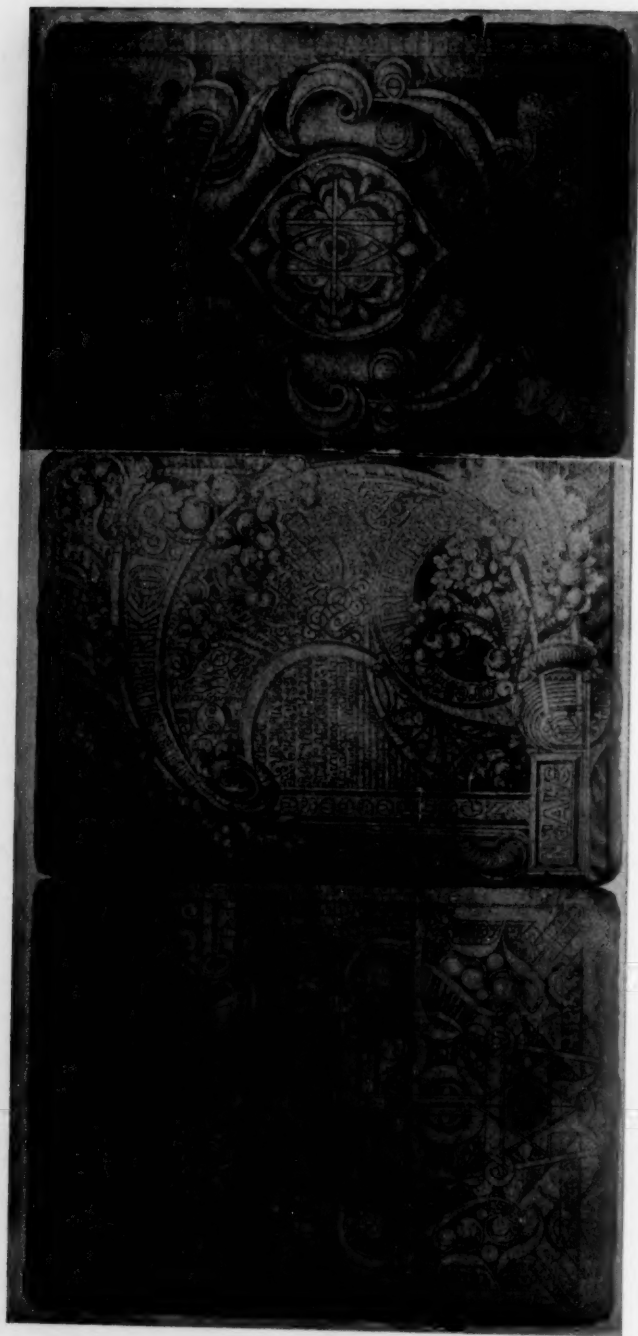
Examples! to prevent his Business! By the
principles of the Bible! would become
a pauper in twenty four hours! I and
like in some words! without knowledge!
Harkin ye not!

Day to them! For such are damned!
Being murdered! and theophany of the
Holy Ghost! God and his Holy Word!
But!

Quarrel ye to the Lord's Fall!
who only! But! is unperturbed! —
with God's Holy Theology! to receive
Feds!

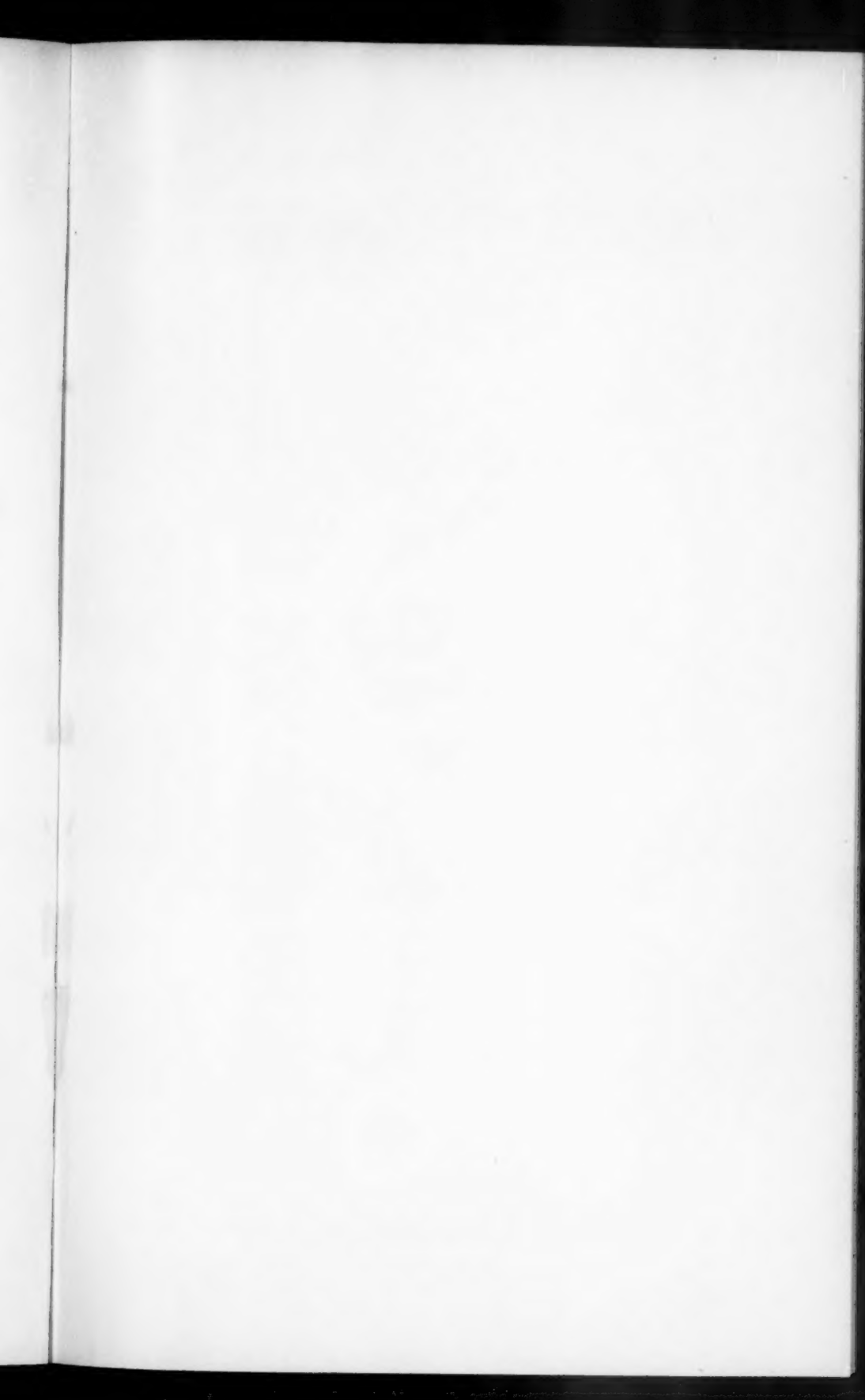
These usurping! plundering! murdering &
the Jewish! Kings County! New York! By
virtue of God's Holy Testament to the land

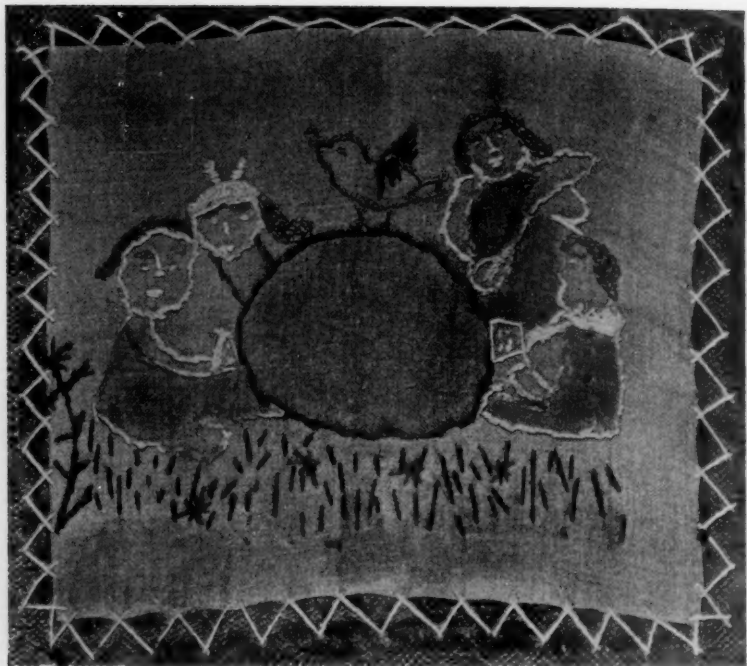
and
beds
TT



DRAWINGS (HALF NATURAL SIZE) MADE BY A MALE PARANOIAC IN THE KINGS PARK STATE HOSPITAL, LONG ISLAND, N. Y.

Drawn on plain manilla paper by pencil, without the aid of any instruments. Patient was an artistic fresco-painter and decorator. Confined in the insane asylum 9 years. Very incoherent and very mystical. Drawings very highly symbolical, principally mathematical and metaphysical refutations.





A SPECIMEN OF EMBROIDERY-DRAWING.

(Middletown State Hom. Hospital.)

Made by a female chronic maniac, and has a close connection with some of her delusions.

PLATE V.

The execution of the drawings is often elaborate, yet they frequently lack in detail and fine points. The accompanying illustration is a marked, but almost unique, exception. (Plate IV.)

Many of the pictures of the insane remind us of those which children make; others are gross and crude. As a rule, the objects represented in the drawings are those which play a large rôle in the morbid mental life of the patient.

The pictures of the insane are preferably done by colored pencils, in crayon, or in pen and ink. I have but very seldom observed among the insane any successful attempt at painting, and that although I went so far as to provide some of the patients, who could use them, with colors.

The insane prefer to make their pictures on paper, provided they are supplied with it. If such is not the case, and occasionally even when not in want of paper, the patients will draw on the floor or on the walls of their chambers, on the margins of their newspapers, or on any plane surface they find about them.

A special class of pictures are those that are embroidered on some fabric. They are produced mainly, but not exclusively, by female patients and are generally highly symbolical. (Plate V.)

The male insane seem to be addicted to drawing much more than the female.

Some insane will never finish their pictures.

I present a few specimens of my collection of drawings of the insane illustrating some of the mentioned points.

My experience with the epileptics extends mainly to those members of this class who are confined in the hospitals for the insane or in the asylums for the feeble-minded and idiotic. However, these epileptics do not form any special class, for they were placed among the insane or the feeble-minded before a special hospital for the epileptics was established.

These epileptics do not paint and they do not draw much. When they do draw, the objects of their pictures, much more than is the case with the insane, are likely to be of a religious nature, or obscene. There seems to be, however, less symbolism in their drawings than in the drawings of the insane. Simple figures predominate. In the more complex attempts we meet with much confusion.

The insane criminals, so far as I had the occasion to observe

them in hospitals for the insane, and in the Matteawan State Hospital for the criminal insane, draw but little, and most of their attempts are crude. To this there are a few exceptions. Symbolism is very prevalent.

The feeble-minded, which I had an ample opportunity to study at the Syracuse State Institute for the Feeble-minded, would probably never attempt to draw of their own impulse unless it be to make marks without any character and meaning. But all the modern institutions for individuals of this class, and particularly the model Syracuse State Institute for Feeble-minded Children, under Dr. J. C. Carson, give their inmates a regular course of instruction, which embodies a training in elementary drawing. The lower grades of the feeble-minded will seldom, if ever, advance above simple lines. On the other hand, among the less afflicted of these patients, we meet now and then with a pupil who makes really fair progress in drawing.

According to the method of training, the feeble-minded are mainly taught to copy from simple school drawings, and the greatest majority of them never get any further. With a very few, however, it is possible to advance a little, and they eventually copy the outlines of simple objects. But none ever imbue their art products with life or surpass the mere mechanical character of drawing.

By the courtesy of Dr. Carson, I am in possession of a number of drawings by the feeble-minded, and I will present here as example one of the copied and one of the original pictures. (Plate VI.)

After drawing, music is a conspicuous art manifestation among the mentally abnormal, and we meet with this also mostly in the insane.

The practice of music is largely a privilege of the female patients. But whether practiced by a male or by a female, there is something characteristic about the music of the insane wherever one hears it.

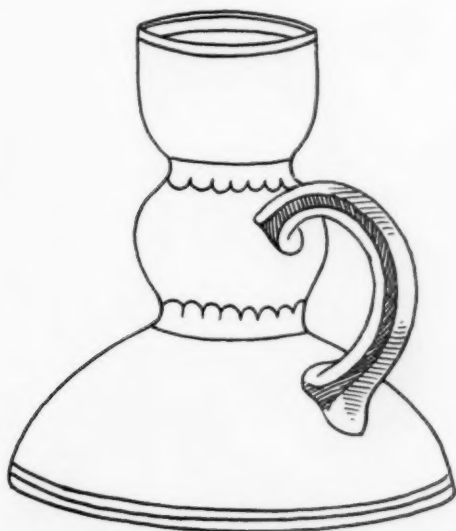
We witness occasionally attempts at difficult compositions, but in the majority of cases the insane prefer to play something simple. It is rare that anything original is attempted.

When playing, and this I have observed in all classes of insane individuals, and in all stages of the disease up to the patient's



COPIED DRAWING.

(Syracuse State Institute for Feeble-Minded Children.)



DRAWN FROM THE ORIGINAL.

(Syracuse State Institute for Feeble-Minded Children.)

recovery, there will recur in the music now and then breaches of continuity, and not uncommonly an uncalled-for repetition. Their music is lacking in spirit, and is either more or less overdone, or monotonous, tiring and lifeless. In those persons whose minds are more affected, chords and false tones will be frequent, and a piece is seldom played complete before another is begun.

The insane will prefer to play from memory to playing from notes. The little of original composition in music that I have had a chance to witness sounded almost always irregular and rather unpleasant, was loud, mixed with fragments of various pieces, and bore now and then a tinge of weirdness.

One of the best musical performances that I ever witnessed among the insane was a violin solo by a male patient in the Rochester State Hospital. In this the rhythm and the notes were rendered perfectly, and both pieces which the patient gave were played to the end, but the performance was soulless and entirely mechanical. Throughout the rendering of the two pieces, the patient, who, before becoming insane from overstudy, was an ardent lover of music, showed not the slightest emotion, and he remained equally indifferent to the profuse applause afterwards.

I heard female patients play the piano, and it seemed that they had a perfect command of the instrument, but somehow there was nothing in the song or composition which would arouse the ordinary sentiments which always accompany with me the good performance of the same song or composition by normal individuals. And this without the interference of any different personal feelings on my part.

The insane cannot execute music spontaneously, without training, to any high satisfaction of even a moderately cultivated listener; notwithstanding this they like good music well.

The majority of these patients like music which is soft, sweet and not too complicated. They also like to hear played popular songs. A few patients, however, show no preference, and others will not be roused by anything but a loud, lively, brass band, the noisier the better. Curiously, patients very seldom take much interest in or really enjoy the playing of another patient. And it is noticeable that instruments like the banjo, mandolin, harp or guitar, have a better effect on the listening patients than have violins or cornets, or even the organ.

Among the epileptics, musical ability differs considerably according to the stage of the disease of the performer and according to his mental state. I cannot say that I have ever observed special musical talent in any epileptic. But those who learned to play can generally play well in the intervals of the attacks and when free from their effects, and before the disease has greatly dulled their mental powers. After this their musical capacities rapidly diminish.

The epileptics do not seem to enjoy music as generally as do the insane; in reality, I have met with some of these patients who were very indifferent, and a few who were positively averse to music, or became excited by it. There are some in whom music will arouse a sort of morbid ecstasy.

Insane criminals apparently enjoy music; they themselves play seldom. It must be taken into account, however, that the circumstances of the seclusion of this class of people hardly allow a full estimate of their capacities in this direction. Under proper direction, both ordinary insane and insane criminals, who were musicians, are capable of being formed into fairly satisfactory bands.

The feeble-minded, and even the idiot, enjoy music extremely, though always in a childish or nonsensical fashion. They enjoy every kind of music and all compositions, though common airs, which they have heard before and especially when played loudly by a brass band, appeal to them perhaps most of all the music.

The feeble-minded, and that not only those of the highest grades, will even learn to play. The Syracuse institution has a mixed band of about a dozen pieces composed of these musicians. Under the guidance of the teacher this band certainly performs to the credit of its instructor.

However, the feeble-minded musicians do not feel the right thrill of the notes they render; nor do the tunes ever affect according to their weight the heart of these players. Nevertheless they are proud of their performance and enjoy it greatly, and this, with the fact that they fully please their regular audiences, ought to satisfy the ambition of their teacher.

In connection with music, there ought to be mentioned dance, song and stage performances.

DANCING.

The insane certainly do enjoy the dance. If any one entertains the slightest doubt about this, let him but visit one of the weekly dances for the patients at Middletown, or at any of the other State hospitals. The observer will see dances of all kinds, all patronized by the patients who are allowed on the floor to the utmost capacity of procurable partners. For some there may be no suitable partner now and then, and they will think nothing of going about the hall fully absorbed in a solitaire. It is a real pleasure and satisfaction for an earnest observer of this class of people to see a jig by these patients.

I have never noticed any bad after effects of these dances on the participants; they are, in fact, a powerful restorative in each hospital.

The insane apparently do not care about much art in their dancing. Not that they will not make fancy figures; but these, and especially the step, follow often more the delusions and disposition of the individuals than they do the music. When a patient begins to dance well or play well or even walk well, in most cases, I think, he may be considered on a highway to his recovery.

The epileptics also like dancing, at least before they become very demented. Yet the epileptic does not enjoy his dance as much as the insane patient. There is always an uncertainty about the attacks, and not unfrequently an epileptic, overcome by a spell, must be taken out of the hall. Besides, the peculiar spells of the surly, ugly, or other abnormal dispositions, which occasionally come over the epileptics, interfere with their enjoyment. Yet some dances, as a form of exercise, may be beneficial to this class of patients.

Insane criminals manifest some liking for the dance. A few have expressed themselves to me in that sense. Yet the sly, suspicious, egoistic nature of many of the insane convicts would speak against any great enjoyment on their part of so convivial, mild and orderly pleasure as dancing is.

The feeble-minded dance; they are trained to it. They dance wonderfully well, considering their mental condition. They do not require extensive teaching, and fully enjoy the dances.

SINGING.

Singing is an accomplishment which is much impaired among almost all mentally abnormal individuals. There are but few exceptions to this rule.

Among the insane of almost all classes, but especially among the female patients, attempts at singing are frequent. Some acute maniacs especially will sing for hours in succession. While an Interne in the Middletown State Hospital, many mornings I have been awakened by the songs of the inhabitants of the "Third Main," who were mostly chronic maniacs and demented. Many paranoiacs like to sing. Dements sing frequently; even the general paretic and the epileptic may occasionally be heard humming some song. Among melancholiacs, especially among the acute cases, attempts at singing are very rare and in many of the latter they are never observed.

The greater amount of singing among the insane is done singly, and that frequently without the slightest notice being taken by the patient whether any one else is singing near besides him or not, or what the other person may be singing. Yet these patients are not incapable of some chorus singing, as can be witnessed during religious services, or occasionally in the evening on a ward. But the capacity is limited.

The singing of the insane possesses certain well-defined characteristics of its own. The most pronounced and general of these is an inferior quality of voice. Deterioration of the voice, and particularly of the power of modulation of the voice, is the rule among all classes of these patients. The voice may be simply failing at greater attempts, or it is hoarse, or husky, or thick, or shrill. A just intonation of a song is a great rarity. The tunes lose in their differentiating qualities. Exaggerations of intonation are met with occasionally.

Next very frequent characteristics of the singing of the insane, particularly of those in the active stages of the various insanities, are either a prolonged dwelling on some one tune, or again, but this more seldom, what in some might be termed an incoherence of singing, and in others a morbid impatience, that is, changing tune for tune without completing any.

In a few cases, not a half dozen in all, I have seen a fair ability

to sing persist in a patient even to dementia. All these patients were good singers before.

The epileptics do not show much inclination to singing. When they do they prefer religious songs to others. Before their dementia is marked, and if the attacks are not frequent, the epileptics will sing almost as well and regularly as the normal people. When the dementia becomes pronounced, singing is weak and rare. Rarely an epileptic will hum or even sing in the abnormal state which follows or more rarely precedes the spell.

Among the insane criminals singing, according to the information which Dr. H. E. Allison kindly gives me, is not infrequent; what I had the opportunity to hear among these patients were mostly brief and very common airs.

Feeble-minded children can be taught to sing fairly well. In some of these children, both boys and girls, the voice is capable of quite a degree of intonation. There is no incoherence in the song among the higher grades of these patients. Nevertheless, taken as a whole, the singing of the feeble-minded children is weaker, less spirited, and less regular, than is that of healthy children. Some of the idiotic will learn a tune occasionally. The older the feeble-minded, the less their singing ability. Chorus singing of popular or church airs is largely preferred by this class of patients.

THEATRICAL ART.

After music, dancing and singing, it will be proper to devote a few words to stage performance among the mentally abnormal. This subject will naturally be very restricted. Stage performance primarily implies a thorough and systematic study, and subsequently a large amount of self-control, of both of which but few abnormal minds are capable.

The epileptics are incapacitated for stage efforts. They cannot stand well any severe and prolonged mental strain, such as stage attempts require, and there is always an uncertainty as to the occurrence of attacks.

As to the insane convicts, according to Dr. H. E. Allison, "there are many who play well, and there are numbers that do well." Several performances are given yearly at the Matteawan State Hospital, in which patients take a large part.

The feeble-minded can be trained at most to a simple, mechanical performance.

There remain to be considered but the insane, and from these we can at once exclude all the feeble individuals, all the acutely insane, and all the demented. The only persons from among this class who are ever capable of any fair stage performances, are the convalescing patients, and a few of the intercurrently or chronically insane.

There have been made efforts in several of the State hospitals for the insane, the Middletown State Hospital included, to give, for the benefit of the patients, some light and suitable play in which all or most of the actors would themselves be insane. None of these efforts, so far as I have witnessed them, or have been informed about them, have proved entirely successful. In instances the strain on some of the patients proves too great and may have unpleasant consequences. I do not think the benefit of the play to the audience has ever equalled that which would result from a similar stage performance by real actors, or even by amateurs non-insane. There is generally much lacking in the play, even if charitably judged, and much is being overdone by the patient-actors; their memories are not always reliable; and the exertion in their rôles becomes with some of them at times so apparent as to be almost pathetic and painful to be witnessed. Taking all this into consideration, and with it taking into account the work and time it takes to prepare patients for the stage, I rather think that theatrical art with the insane must be considered both subjectively and objectively a failure.

A reconvalescing male insane patient attempted recently a stage composition entitled "For Love and War." This piece, of which I have a copy, was performed last October by a company composed of patients and attendants in the Matteawan State Hospital, and gave fair satisfaction.

PRODUCTIVE AND DECORATIVE ARTS.

Some of the insane women will knit or embroider or do a nice patch-work; some of the male insane will build ships or make various objects from wood; and occasionally a patient will try his skill at an instrument of some kind. The objects produced may be interesting or peculiar; but the degree of art in any of the products will never be very considerable.

The insane, especially the women, have much fancy for decorations of all kinds; but, although they show occasionally a considerable ingenuity in their decorative work, they very seldom produce anything truly harmonious, or exactly pleasing, or really beautiful.

In general, it can be said that throughout the whole of their art attempts on the part of insane we can trace more or less a perceptible weakness, defects in finer definition, some incompleteness, want of simpleness, exaggerations, or false harmony.

As one example of the ingenuity of some insane in this direction, I may mention a decorated cushion made lately by a female chronic maniac in the Middletown State Hospital. The patient, who is very insane and has been so for years, and who is always very incoherent and excitable, made a medium-sized cushion. Subsequently she attached to this cushion along its borders ball-pendants made by herself from old paper. Next she wanted to produce some flowers on the face of the cushion. Not having anything to draw the design with, she collected during her walk some fresh leaves, with the juice of which she made her drawing, which was quite good. Having the design, the patient obtained some white flannel. She was allowed to buy a little Diamond dye, and she stained the flannel yellow. From the stained flannel she cut nicely all the parts necessary to the flowers she wanted to make, and then she pasted properly one after another of these parts on the design and finished her flowers. The paste which she used she made by finely chewing some of her breakfast oatmeal. The final result is a neat, nice looking, and quite tastefully decorated cushion.

Of the examples of productive art which I personally witnessed among the male insane convicts, I may mention some nice flower baskets and little figures made from colored bread paste by several of the inmates of the Matteawan State Hospital; and some stars made from paper by another patient in the same place. Dr. Allison, Superintendent of the hospital, placed very kindly at my disposal several other interesting articles made by patients. One of these is quite an elaborate structure from wood, looking like a Chinese or an Indian temple; another piece is a snuff-box, made nicely from a piece of a beef bone which came on the table; and still another article is an interesting but obscene cigarette

holder. All these and additional specimens I hope to be able to describe fully in a later publication on this subject.

The female insane criminals do not seem to me to be much different, so far as the liking of and attempts at decorations are concerned, from the ordinary female insane with similar forms of the mental disease. However, the opportunity for observing real female criminals, who only subsequent to their crimes became insane, is rather limited, as patients of this class are small in number.

Among the epileptics, both the productive and the decorative arts are neglected by the patients. The epileptic is seldom capable of, or especially inclined to, a prolonged exertion in any one direction. Besides this, work, which requires much mental attention, or especially any eye strain, is directly harmful to these patients, which they soon learn, and avoid similar attempts thereafter. Female epileptics whose attacks are light and rare do not seem to me to differ much in any way, so far as arts are concerned, from ordinary healthy persons.

Among the male feeble-minded, training, which is a paramount factor in everything with these individuals, has not yet progressed far enough to allow us to judge definitely of their possible productive art abilities. I have no doubt but that some degree of wood-carving, or even of modelling, could be attained with some of these patients.

As to the girls, they make nice lace-work and they can be taught to knit well and even to embroider. Decoration, especially flower decoration, is much in favor with these patients. They also prize highly gaudy dress articles. Some of the more intelligent girls of this class enjoy making little fancy things from lace, ribbon or paper, and these little productions, which, in the Syracuse Asylum, are exposed once a year to visitors, are occasionally quite tasteful.

In a very few instances a feeble-minded patient was observed to produce anything original. A pair of mittens, made with a broken brass pin, and commenced and finished in the wrong way, and a piece of simple lace, made also with a crude instrument, are the only authentic examples of original work of the feeble-minded children that have come under my notice. Both these articles are the property of the Syracuse State Institution.

Among older feeble-minded, especially among those who are not confined in institutions, attempts at little original productions are not rare, much the opposite; but what is produced is generally of very little value. Taking all into consideration, in the feeble-minded attempts in art in any direction remind one always more or less of the work of little children.

So much in this place about arts in the mentally abnormal. In a general way, the study of this subject among the different classes among the mentally abnormal individuals lead me to the following conclusions:

(1) The general standard of any of the arts in particular, or of all of them taken together, is among the mentally abnormal of all classes rather low. It is throughout inferior to the standard of which the same persons were capable while in a more normal state of mind, or to that which we would obtain in equal numbers of mentally normal persons born and brought up in approximately similar social conditions.

(2) The inferiority of the art standard must be considered separately in the feeble-minded, as it is of a different origin in these than in the insane, the epileptics and the insane criminals. The art standard among the feeble-minded, the lighter grades of these only being considered, corresponds in a certain proportion to the kind and the amount of training these patients have received. This proportion is inferior to that which can be obtained under similar circumstances with normal individuals.

(3) The abnormal condition of the mind of insane persons and that of the epileptics has generally caused a deterioration of the previous art capabilities of these individuals. In no case authentically known to me have these diseases of the brain been observed to arouse a new art talent, or to highly elevate the previous art standard of the individual. There may, however, occur in these diseases prolonged impulses to production in some one direction, or due to the patient's having more time, some of their dormant abilities may develop themselves to a certain degree.

(4) In consequence of the above facts, insanity in any of its forms, and equally epilepsy, may be considered as being generally more or less detrimental and unfavorable to those mental qualities which are concerned in the exercise of any form of art.

LITERATURE.

I will not devote much space in this place to the literary manifestations which can be observed in the mentally abnormal. The subject is very extensive of itself, and will require much additional study.

First, a few words as to writing itself.

The insane will very frequently underline numerous words and phrases, or they will use many exclamatory marks, or quotations, or many parentheses. They make many mistakes in punctuation.

Flourishes about the capitals, or even about all the letters, and changes in the typical shapes of the letters, are very frequent and make at times the writing almost undecipherable. (v. Plate III.) Profuse or improper use of capitals is also frequent. Imitations of printed type are met with now and then; patients who write thus are generally willing to undergo any trouble in order to be listened to and understood.

Many insane will write all along the previously left margins of their letters, or even across what they have already written. They do this very seldom simply from a want of additional paper.

Misspelling and bad construction are frequent, even with the well-educated and native patients. Some favor the use of many foreign phrases, or of many big words; occasionally a patient will use symbolic words, to which, however, there is rarely any steady meaning. Various tremors can be detected in the writings of the insane; but they are more rare than might be expected.

Among the epileptics, in the more severe and in the old cases, the handwriting deteriorates and grows heavier; repetitions and confusions occur. Many epileptics, however, are, when free from their attacks, fairly average writers.

The feeble-minded learn to write, but they do not advance beyond a limited grade. Their writing looks almost always like that of small school-children. The composition is of the simplest, division of sentences improper, punctuation very defective. Omissions of letters or of words are encountered.

So far as I have seen the writings of insane criminals, they were mostly poor, crude, those of little educated persons. To this there are some exceptions.

As to real literary efforts, these are practically wanting among the feeble-minded.

The epileptics show frequently an indisposition to literary efforts, and outside of letters, and particularly petitions, produce very little.

Among the insane criminals, writing seems to be favored. Some of these patients will make complaints in writing; a great many address their lawyers, or the courts, or some friends, and plead for liberation, denouncing usually at the same time the asylum they are in and its authorities. A few larger treatises are produced, the subject of which is generally self-justification or a protest of innocence, and perhaps at the same time an accusation of somebody else.

I have in my possession a printed pamphlet of about thirty pages, written and published by an insane murderess, in which she recounts minutely all the circumstances of the murder, except the act itself, and all subsequent happenings, trying to prove by all this that she was not the murderess. As a literary production of a criminal insane person, this little pamphlet is a jewel. But I believe the woman was insane before she committed the murder.

I met an insane convict who wrote, while insane, a novel and a number of pathetic poems.

The literary abilities of the ordinary insane would, at the first attention to the matter, seem to be very strong, and that especially where they are not curbed or where they are even carefully encouraged.

Many of the insane are given to writing in profusion. If you are their favorite physician, they will supply you every day with a voluminous letter, and you will get much sooner tired of reading than your patient of writing his compositions.

The paranoiac and the chronic maniac are both inveterate writers, but they are occasionally challenged by the general paretic in the first stages of his disease. The terminal dement writes little and seldom intelligently. The melancholiac is almost

as averse to writing as he is to eating or sleeping. The acute maniac will write willingly, but his writing will be very incoherent.

The writings of every insane individual will generally preserve throughout the same type, though they may improve or deteriorate according to the condition of the patient.

Not all the writings of the insane can be called literary efforts. A certain class of insane will write only because the pen and paper are the only means by which they can express or augment their complaints against things in general or particular. Certain paranoiacs will be urged to write by their delusions of persecution and they expect to obtain aid through the persons to whom the writing is addressed. But outside of all these, there is in every hospital, just as is the case with artists, a certain number of genuine *literati*, who write from mere pride, or ambition, or but for the pleasure of writing.

The Middletown State Hospital published until recently a weekly paper by which the majority of the best literary efforts in this particular hospital were secured. The *Conglomerate*, the name of the paper, has been a very valuable document to me in my study of this particular question.

A thorough general analysis of the literature of the insane would occupy many a column. As to the mere letters, there can be recognized in these a number of more or less distinct types. There are the letters of complaint and accusations of the paranoiacs; the self-accusing or despairing letters of some melancholiacs; the exaggerations of the general paretic; then there are the religious, the blasphemous and the sensual letters, varieties which are intrinsically somewhat related; and we have, further, the suppliant "go home" letters; the entirely incoherent epistles, etc.

As to larger products than letters, in general there are four principal classes or tendencies of these writings: These are poetry, imagery, criticisms, and witticisms.

Poetry is largely preferred, but may be considered the most imperfect of the above-mentioned classes of insane compositions. The poems very seldom express any definite lofty idea, and when they do express one, they seldom follow it throughout.

The poems are almost generally short, within a few dozens of lines. Their rhyme is often more or less irregular.

The imagery is frequently of a perceptibly insane character, and comprises many delusions. The patients are liable to enlarge upon everything; to treat little things with very minute detail; to give undue importance to objects of their preference, or to be very sentimental.

Criticism is almost generally exaggerated, although it may be humorous or acute. The insane enjoy criticising methods in their writings, and they enjoy especially, it seems, criticism of their physicians. Some of these criticisms are jocular; but others, and especially those found in letters, are liable to be very malign. The criticism is generally proportioned to the grade of the physician, and the superintendents get the hardest.

Witticisms are most frequent with the chronic maniac, though they are also a favored topic with some of the paranoiacs in the moments of their better disposition. They are occasionally quite acute; frequently, however, there will be detected sad deficiencies, and what was intended to be very witty is really but insipid, dull or stupid.

In general, the student of the writings of the insane will easily see that all the literary abilities of these patients, through their insanity, have undergone a variable change to the worse. He will never find them improved, though they may be stimulated, by the disease.

The effect of insanity in all its forms upon the literary talents of the insane may be said to be detrimental, in a similar way as was the case with the art talents of these patients. The same, but in a modified degree, is true of the epileptics. In the feeble-minded, except in the lightest cases, all literary abilities seem to be entirely absent.

The artistic and literary manifestations of the insane will prove valuable in the study of the delusions of these patients. These manifestations are entirely spontaneous and they reflect sometimes clearly the patient's most intimate ideas and thoughts which otherwise it may be very difficult to trace. The writings reflect further various tendencies of the patient, and also any incoherence or confusion which may exist. They also reflect, if observed for some length of time in a single individual, the mental

progress to the worse or to the better. Finally, some degrees of agraphia may be traced in the writings of mentally abnormal persons.¹

¹ The author will highly appreciate any specimens of writing or art, produced by mentally abnormal individuals with which he may be favored. Address Ales Hrdlicka, Pathological Institute of the N. Y. State Hospitals, 1 Madison Avenue, New York City.

THE TUBERCULIN TEST.¹

By IRWIN H. NEFF, M. D.,

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The value of tuberculin for diagnostic purposes is generally recognized. Reports confirming its efficacy for diagnosis have come from many hospitals, and it is now a routine method for detecting suspected tuberculosis in any part of the body.

The question of its utility for diagnosis having been decided, it remained to find out if it would be detrimental when thus used. Reports negative this, no harmful effects having been noted in the many series of cases.

The continued success of veterinarians has made it the decisive test for the detection of bovine tuberculosis. By veterinarians and state boards, although it is not regarded as an infallible test, it is deemed the best that has ever been offered. The percentage of failures is exceedingly small and scarcely to be considered as compared to its many successes. The writer has had an opportunity for studying its effects in cattle at various tests and noting its verification by autopsies in many cases. Indeed, so uniform were the results that it is doubtful, when properly used, if failure results. Naturally, many rules are to be observed and precautions to be taken in its administration. The degree of infection of an animal may obscure the reaction and apparently invalidate the test.

I mention this fact to show that in the detection of human tuberculosis by tuberculin similar precautions are also essential, and, as I will point out later, each case requires consideration, as the test is not applicable to all cases.

In hospitals for the insane we have in the tuberculin test a diagnostic measure of particular merit. Owing at times to the absence of physical signs, dependent upon the impossibility of

¹ Read at the Sixth Meeting of the Association of Assistant Physicians of Hospitals for the Insane, Kankakee, Ill., Sept. 29, 1898.

an accurate physical examination, due in part to a lack of co-operation of the patient, and also to the impossibility of using other methods of diagnosis possible in the sane, tuberculosis in the insane may only be detected a considerable time after infection. Failure in general nutrition, progressive loss in weight not associated with inanition, or dependent upon delusions, may lead one to suspect strongly the presence of tuberculosis, but the absence of cough and no perceptible increase in expectoration must necessarily obscure the diagnosis. Although sputum examinations are often not impossible, it is well known that the tubercle bacilli may not appear until late in the disease. Reaction to the tuberculin can easily be secured at this stage, thus permitting isolation of the patient in the early stages of the disease, and securing for the patient treatment at the most favorable time.

Where large numbers of people are brought together, even if sanitary conditions are apparently perfect, tuberculosis in its various forms may appear. The infection may come from within or without; in either case its presence is a menace to the health of the population. The death records of hospitals for the insane show a variable percentage of deaths from tuberculosis. This variation may be independent of any known cause, and the fluctuation may be considerable. The variation in the Eastern Michigan Asylum since the opening of the institution has been from eight to fifteen per cent. of the total number of deaths during each biennial period, giving an average of eleven per cent. Although there are exceptions, this may be taken as an average of most of our American asylums.

In English asylums tuberculosis in many localities is more common, notwithstanding most strenuous measures have been used for its prevention. Eric France,² in a recent report, shows that the percentage is increasing, and in Northumberland Asylum, for eighteen months prior to June, 1897, 40.2 per cent. of all deaths were due to tuberculosis. Reference to the same article gives in detail results of experiments, methods of prophylaxis, and a rigid and satisfactory method of diagnosis by tuberculin.

² Tuberculosis in the Insane, *Journal Mental Science*, Oct., 1897.

W. P. Northrup³ gives a valuable and elaborate report on the tuberculin test as used in the Presbyterian Hospital, New York, during 1897. Information is given regarding dosage; cases are reported, and concise directions are given.

Henry P. Loomis⁴ accords to tuberculin much credit as a diagnostic agent, and also uses it in estimating the degree of reaction.

Edward O. Otis⁵ has confirmatory results in a number of cases, and in a series of fifty-three cases had observed no dangerous effect or bad result. From his experience he decides "that it is a safe procedure, and one need not feel apprehension in employing it."

A. C. Klebs⁶ deplors the facts that tuberculin has been so little used for tuberculosis, and while strongly commending tuberculin for diagnostic purposes, he is aware of the objections to its use which have appeared. As explanatory of his opinions of these so-called disadvantages I quote the following:

"In general, I can say that I have never seen a case reacting to tuberculin in which I could absolutely exclude all possibility of tubercular focus, and in which the suspicion was not supported by other general indications of tuberculosis. I have never regretted this additional support to the general suspicion, as one erroneous diagnosis of tuberculosis does less harm than an entire oversight. It has often been claimed against the practical value of the tuberculin test that it reveals latent foci in cases in which the disease has come to an absolute standstill, and in which the patient does not suffer at all from the disease. This is certainly true, but in some of these cases the disease will set in sooner or later with renewed activity, and the recognition of such latent processes, together with rigidly enforced preventive measures, will often obviate danger threatening in the future."

From reports of all cases it may be said that tuberculin is a reliable test for tuberculosis in from 85 to 95 per cent. of all cases.

³ The Tuberculin Test for the Presence of Tuberculosis, Medical News, April 23, 1897.

⁴ Certain Points of Interest in Phthisis, Medical Record, March 21, 1898.

⁵ Tuberculin Test in Cervical Adenitis, Medical News, July 9, 1898.

⁶ Diagnostic and Therapeutic Value of Tuberculin and its Derivatives, Boston Medical and Surgical Journal, Feb. 10 and Feb. 18, 1898.

I have quoted from recent literature on the subject expressly to show the results of late work with tuberculin for diagnosis and to emphasize the uniformity in opinion regarding the results.

At the risk of repetition I will detail the method used at the Eastern Michigan Asylum, with certain references to reaction and the preliminary temperature record which our experience has established. I shall consider the subject under the following heads: (1) Preliminary temperature record, (2) Dosage and number of injections, (3) Technique, (4) Reaction and some of its peculiarities.

(1) *Preliminary Temperatures.*—While it is thought by some that an initial temperature record for twelve hours, with temperature taken every two hours, is a reliable preliminary temperature test, I have found this method to have disadvantages, as a sudden rise in temperature, with a corresponding quick drop, is not at all uncommon, even in the early stage of tuberculous cases in mental diseases. (See Chart 2.) By observing temperatures every two hours for forty-eight consecutive hours an average maximum temperature can with more certainty be obtained, and a reliable preliminary maximum temperature found. By the adoption of this plan rises in temperature, which might have been erroneously attributed to tuberculin, have been avoided.

As illustrative of the care requisite in recording the normal temperatures, I quote from a report of the Michigan State Agricultural College Experiment Station:⁷ "The greater the number of normal temperatures the better may we be able to discover any influence of tuberculin. The rule should be to take as many normal temperatures as it is feasible to take. Keep all the records and compare them each time."

In a series of experiments on 98 cows a considerable variation was found in normal maximum temperatures. In another series, preliminary temperatures were taken during the day. A day was allowed to elapse, and the temperatures were again taken. It was found that the second record of temperatures showed a rise of two degrees and over, which otherwise would have been erroneously attributed to tuberculin and have condemned nine cows.

⁷ A Study of Normal Temperatures and the Tuberculin Test, Charles E. Marshall, Bulletin 159, Michigan State Agricultural College Experiment Station.

The report concludes by saying: "This certainly indicates that we must proceed with much circumspection, otherwise tuberculin will be thrown into disrepute, notwithstanding the hyperenthusiastic spirit which is exercised in its behalf."

Although there is no such variation in the normal maximum temperatures in man in certain cases of insanity, especially in those accompanied with organic changes in the nervous system, an irregular rise in temperature is sometimes seen. This may or may not be dependent upon some known cause, and may not bear any relation to the existing tuberculosis.

An irregular temperature contraindicates the employment of tuberculin, and for this reason advanced cases with pyemia and consequent irregular and wide ranges of temperature are not amenable to the test. (See Chart 21.)

Attention is here called to the adaptability of the ordinary temperature chart for temperature records in this test.

(2) *Dosage.*—The following solution, recommended by Eric France, *Journal Mental Science*, October, 1897, has been in use in the majority of cases. A 1/1000 solution, made by diluting 1 cc. Koch's original tuberculin solution with .5 per cent. solution carbolic acid. One cc. of this solution represents two milligrams of tuberculin. This solution was used as a matter of convenience. Other solutions can be prepared at will. The tuberculin employed should not be old, and fresh solutions should be frequently prepared.

The initial dose for adults should be from one to two milligrams. This is largely a matter of choice, as reactions of the same degree often follow each injection. We have made the initial dose 2 mg. If in a suspected case no reaction follows the initial dose, a second injection of 4 mg. is given, two or three days after the original injection. This failing, a third attempt should be made, and an injection of 6 mg. after the lapse of 48 hours, or later if desired. (See Charts 9, 12, 19.) A longer time may, if desired, elapse between the injections; 24 hours, however, is the minimum time. Just why a second or third injection should at times be required before reaction, is a matter still undecided. It may be that there exists a greater susceptibility in some individuals.

(3) *Technique.*—For injection a small antitoxin syringe is used.

This permits of easy sterilization, as the various parts can be easily removed. The usual antiseptic precautions are taken. In no case has any local trouble been produced. The point selected for the injection is between the shoulders. This permits of easy manipulation of the syringe, and in the case of an apprehensive or resistive patient the syringe can be more easily controlled. In order to secure system the injections, with few exceptions, have been made at the same time of day.

(4) *Reaction and some of its peculiarities.*—A typical reaction is a rapid, sudden rise in temperature above the normal preliminary temperature, in from eight to fifteen hours after injection, and continuance of the high temperature for a variable time, rarely exceeding three hours, and a rapid decline. Subjective symptoms, consisting of vaso-motor flushing of the face, chilliness and debility, may be present, subsiding on the decline of the temperature. Although the decline of the temperature curve is generally sudden, the descent is at times gradual, and the temperature for several days may show considerable oscillation. (See Charts 12 and 18.) There may be some cases of secondary rises in temperature some hours after the injection. It may be 48 hours before the temperature returns to the "normal," as obtained before injection. In general, a rise of two degrees or more is taken to mean reaction. It is the opinion of all observers that a rise of less than two degrees, after repeated tests if necessary, should not be accepted as confirmatory. A rise of two degrees has been accepted in the tests which I record. Chart 19 records a temperature, after injection, within $\frac{3}{5}$ of the necessary rise of two degrees. This is not accepted as a reaction, although the rise and decline of the temperature is strongly suggestive.

In the early stages of tuberculosis in the insane it is obvious that the main reliance in many cases must be the rise in temperature. For this reason as many preliminary temperatures as may be indicated to establish a *normal maximum temperature* must be taken. After the injection the temperature should be systematically kept for several days.

The following is a report of 26 cases of injections for suspected tuberculosis. The diagnosis of all cases of tuberculosis has been confirmed by microscopical examination of sputa and by the subsequent course of the disease.

CASE I. M. R., male. Diagnosis: melancholia; duration 4 months; age 41. Physical examination: marked dulness at apex of right lung; diminished expansion of right lung; cough and expectoration. Normal maximum temperature 99° . First injection of 2 mg. Dec. 17, 1897. Reaction two degrees in eight hours. Microscopical examination of sputum showed numerous tubercle bacilli. A second injection of 1 mg., May 9, 1898, did not secure reaction. On May 11, after injection of 3 mg., marked reaction.

CASE II. M. G., male. Diagnosis: chronic dementia; duration 12 years; age 50. Physical examination: moist rales at apices of both lungs; evidence of cavity at upper lobe of left lung; loss in weight, cough, expectoration, pyrexia. Preliminary temperature, maximum 105° . Injection of 2 mg. Dec. 18, 1897. Irregularity in temperature obscured evidence of reaction. Examination of sputum showed numerous tubercle bacilli.

CASE III. T. K., male. Diagnosis: paretic dementia; duration 2 years; age 50. Physical examination: diminished lung expansion; rapid failure in weight. Preliminary maximum temperature 99° . Injection of 2 mg. Dec. 24, 1897. No reaction. Examination of sputum negative. Subsequent course of case has proved the impairment of nutrition to be dependent upon his mental disease.

CASE IV. E. W., female. Diagnosis: dementia chronic; duration —; age 29. Physical examination: moist rales in apices of both lungs; cough, profuse expectoration, emaciation. Preliminary maximum temperature $98\frac{2}{3}^{\circ}$. Injection 2 mg. Dec. 27, 1897. Possible reaction obscured by previous irregularity in temperature. Examination of sputum confirmed diagnosis of tuberculosis.

CASE V. C. P., female. Diagnosis: dementia chronic; duration —; age 30. Physical examination impossible on account of resistance of patient. Cough, profuse expectoration. Preliminary maximum temperature $98\frac{2}{3}^{\circ}$. Injection 2 mg. Dec. 27, 1897. Previous irregularity in temperature obscured reaction. Examination of sputum showed numerous tubercle bacilli.

CASE VI. G. S., male. Diagnosis: monomania; duration 2 years; age 34. Physical examination: diminished lung expansion; progressive loss in weight; slight cough. Preliminary max-

imum temperature $99\frac{4}{5}^{\circ}$. Injection Jan. 14, 1898. No reaction. Examination of sputum negative. Subsequent course of case showed symptoms to be dependent upon inanition.

CASE VII. J. M., male. Diagnosis: dementia chronic; duration 5 years; age 30. Physical examination: septicemia, resulting from infected wound; numerous abscesses; pulpy condition of right knee, thought to be tubercular; examination of lungs unsatisfactory on account of resistance of patient. Preliminary maximum temperature $101\frac{3}{5}^{\circ}$. Injection Dec. 28, 1897. No reaction noted. Examination of sputum negative. Subsequent course of case gave evidence of suppuration in knee-joint.

CASE VIII. J. M., female. Diagnosis: acute mania; duration —; age 30. Physical examination: dulness over apex of left lung; respiration tubular, vesicular murmur roughened over left lung; no cough or expectoration. Preliminary maximum temperature 101° . Injection Jan. 31, 1898. No reaction. Patient removed shortly afterward from hospital. No further history obtained.

CASE IX. O. A., male. Diagnosis: melancholia; duration —; age 65. Physical examination: dulness over apex of left lung; loss in weight; cough, expectoration. Preliminary maximum temperature 99° . Injection April 10, 1898. No reaction. Second injection May 9, 1898, 4 mg.; preliminary maximum temperature $99\frac{2}{5}^{\circ}$. Reaction in four hours. Examination of sputum confirmatory.

CASE X. W. G., male. Diagnosis: imbecility; duration —; age 21. Physical examination: loss in weight; diminished lung expansion. Preliminary maximum temperature $101\frac{1}{5}^{\circ}$. Injection 2 mg. March 31, 1898. No reaction. Second injection April 1, 1898, 4 mg. No reaction. Examination of sputum negative. Patient has since gained in weight. No signs of pulmonary trouble.

CASE XI. G. L., male. Diagnosis: dementia chronic; duration 2 years; age 20. Physical examination: diminished lung expansion; slight cough; failure in nutrition. Preliminary maximum temperature 99° . Injection May 11, 1898. No reaction. Examination of sputum negative. It was afterwards ascertained that symptoms were dependent upon inanition.

CASE XII. C. P., male. Diagnosis: melancholia; duration 1

year; age 38. Physical examination: marked dulness at apex of left lung, moist rales at apex of left lung, diminished lung expansion; cough; hæmoptysis. Preliminary maximum temperature 100° . Injection 2 mg. May 15, 1898. No reaction. Second injection 4 mg. May 16, 1898. Marked reaction. Examination of sputum confirmatory.

CASE XIII. W. B., male. Diagnosis: dementia chronic; duration 20 years; age 80. Physical examination: moist rales at apices of both lungs; respiratory murmur suppressed; cough, profuse expectoration, loss in weight. Preliminary maximum temperature $99\frac{4}{5}^{\circ}$. Injection May 16, 1898. Marked reaction. Examination of sputum confirmatory.

CASE XIV. A. P., male. Diagnosis: dementia chronic; duration —; age 35. Physical examination: diminished lung expansion, dulness at right apex, marked aphonia, occasional dyspnea. Preliminary examination of sputum showed numerous tubercle bacilli. Preliminary maximum temperature 100° . Injection May 16, 1898. Reaction.

CASE XV. I. B., female. Diagnosis: epileptic dementia; duration —; age 23. Physical examination: tubular and cavernous respiration at level of second and third ribs; cough and expectoration; irregular rise in temperature. Preliminary maximum temperature 103° . Injection May 16, 1898. No reaction could be observed. Examination of sputum showed tubercle bacilli.

CASE XVI. W. S., male. Diagnosis: melancholia; duration 1 year; age 58. Physical examination: diminished lung expansion; marked loss in weight; pus in urine; treatment for bladder trouble unsatisfactory; suspicion of tubercular cystitis. Preliminary maximum temperature $99\frac{3}{5}^{\circ}$. Injection May 16, 1898. Reaction. Examination of urine showed tubercle bacilli.

CASE XVII. J. F., male. Diagnosis: epileptic dementia; duration 5 years; age 53. Cough and expectoration; loss in weight. Physical examination impossible, dependent upon resistance of patient. Preliminary maximum temperature $99\frac{3}{5}^{\circ}$. Injection 2 mg. Aug. 5, 1898. No reaction. Second injection, 4 mg., Sept. 5, 1898. No reaction. Examination of sputum negative.

CASE XVIII. T. L., male. Diagnosis: dementia chronic; duration 18 months; age 29. Physical examination: dulness

at apex of left lung, diminished expansion of left lung; rapid loss in weight; failure in nutrition. Preliminary maximum temperature $98\frac{4}{5}^{\circ}$. Injection Aug. 24, 1898. Reaction; examination of sputum confirmatory.

CASE XIX. M. J., female. Diagnosis: dementia chronic; duration —; age 27. Physical examination: slightly diminished resonance at bases of both lungs, prolonged respiratory murmur at both bases; loss in weight; slight cough; no expectoration. Preliminary maximum temperature $100\frac{4}{5}^{\circ}$. Injection 2 mg. Aug. 29, 1898. No reaction. Second injection, 4 mg., Aug. 30. No reaction. Examination of sputum has been negative.

CASE XX. S. D., male. Diagnosis: paretic dementia; duration 4 weeks; age 31. Physical examination: slight cough; increased resonance over apex of left lung and at base of left lung; prolonged breathing, harsh in both localities; expectoration. Preliminary maximum temperature $99\frac{4}{5}^{\circ}$. Injection Sept. 9, 1898, 4 mg. No reaction.

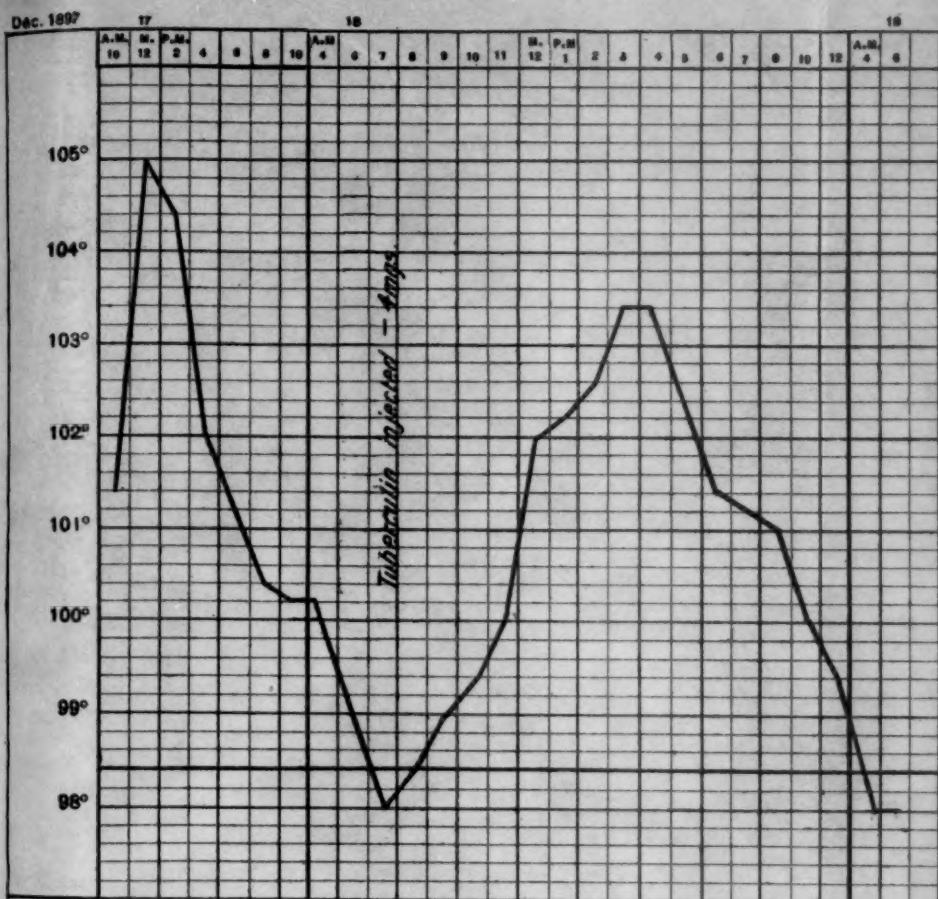
CASE XXI. W. B., male. Diagnosis: dementia chronic; duration —; age 38. Physical examination: moist rales at apices of both lungs; evidence of cavity at upper lobe of right lung; profuse cough, emaciation, expectoration. Preliminary maximum temperature was found to be 104° . Injection not given. Examination of sputum confirmatory.

Summary of results:

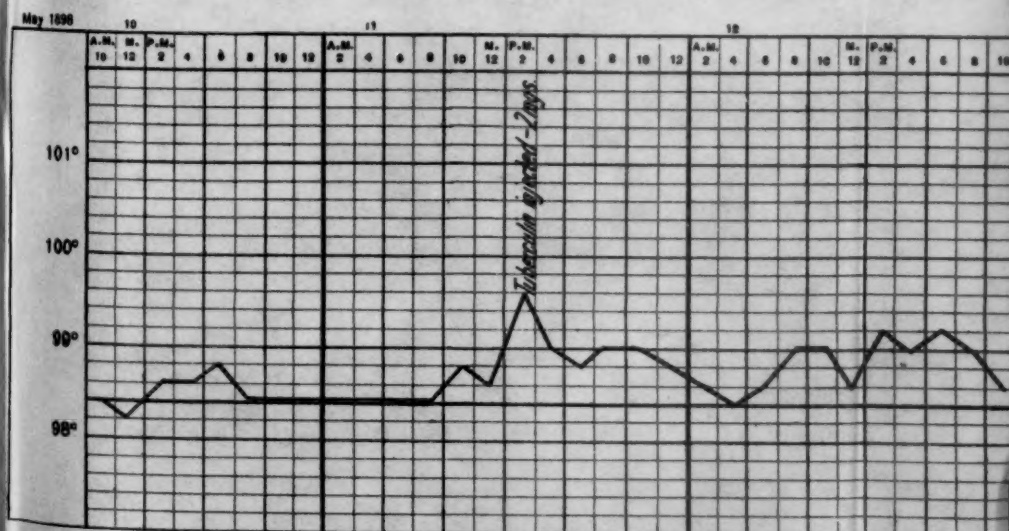
Of 20 cases injected 7 reacted. Subsequent microscopical examination and the course of disease have verified the diagnosis of tuberculosis in these cases. Of 13 cases not reacting 5 (2, 4, 5, 8, 15) were undoubtedly tubercular, as shown by physical signs and sputa examinations. Oscillations of temperature, however, rendered the reaction obscure. A normal maximum temperature could not be obtained. In one case (Case 7) irregularities in temperature did not permit of reaction. The course of the case was not indicative of tuberculosis. Six cases not reacting (3, 6, 10, 11, 17, 20) proved to be cases of mal-nutrition, dependent upon the mental condition. One case (Case 19) failed to react to the standard two degrees after two injections. The case is still under consideration.

Conclusions:

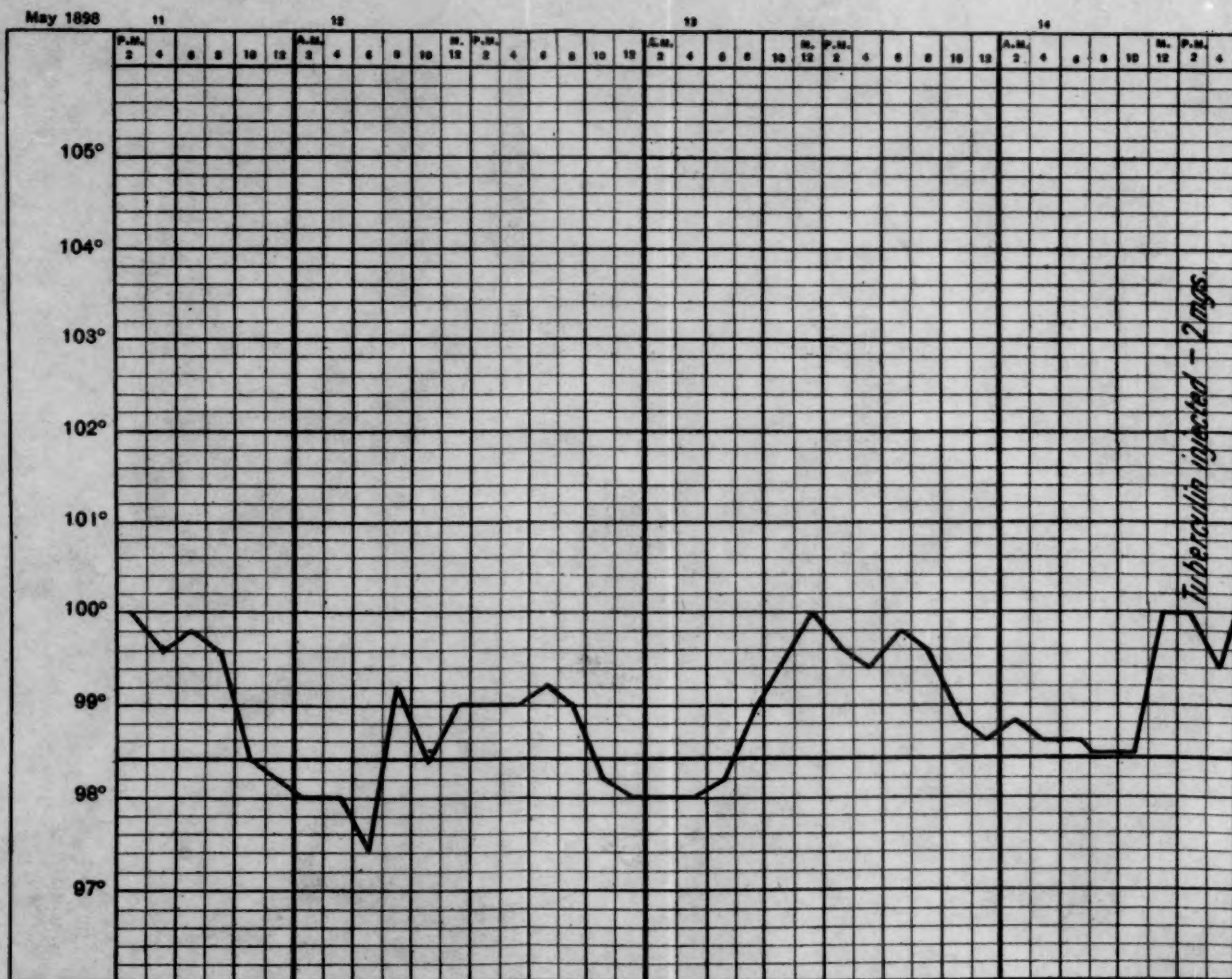
(1) Tuberculin is a reliable and safe diagnostic agent. (2) Secur-



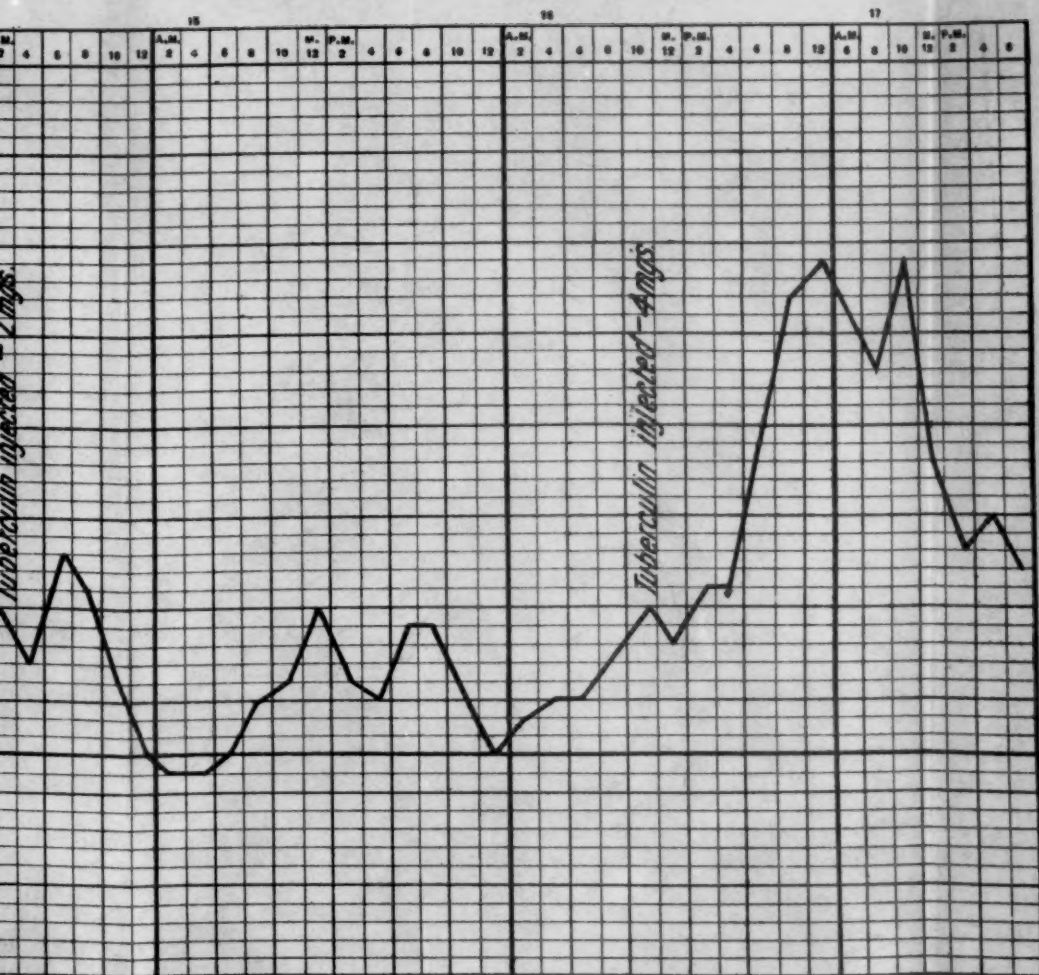
CASE No. 2.—Irregular temperature curve obscured reaction in a tuberculous case.



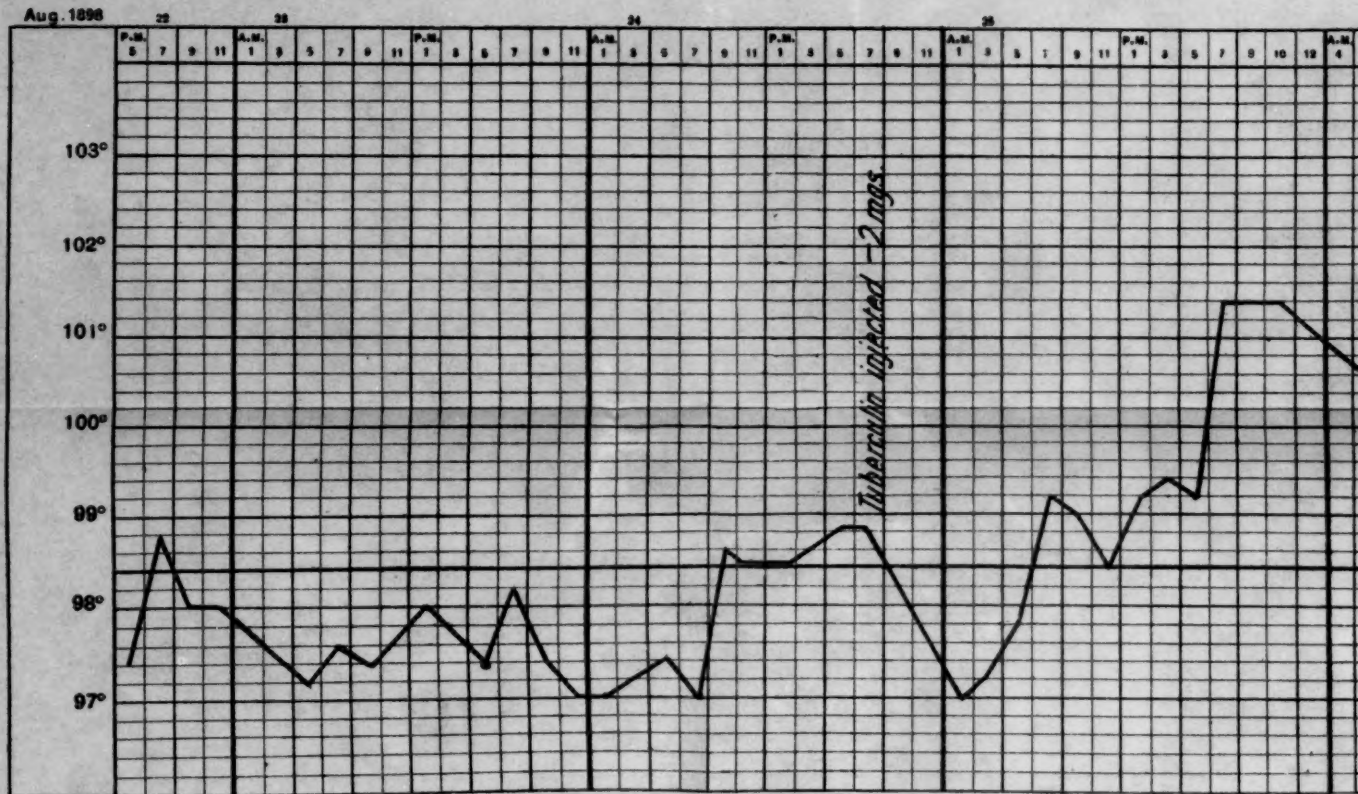
CASE No. 11.—Showing absence of reaction in a suspected case of tuberculosis.



CASE No. 12.—Showing marked reaction with "secondary

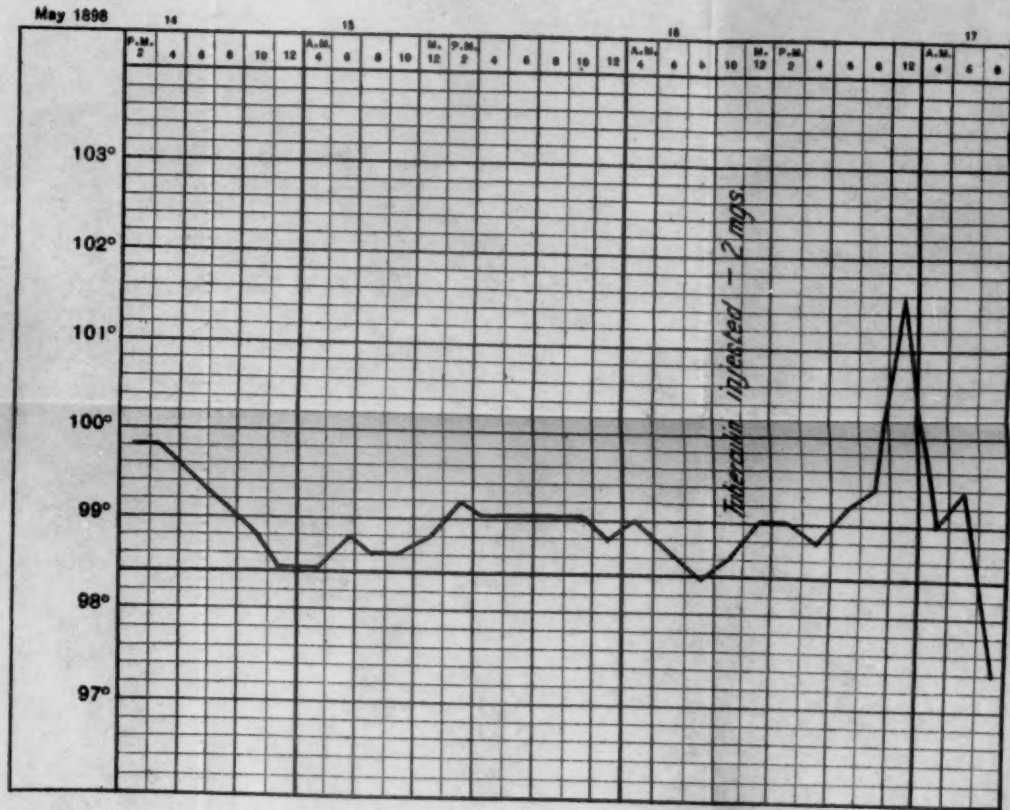
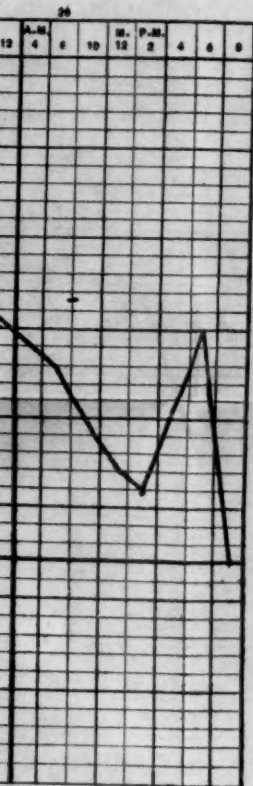


secondary rise" following a second injection.



CASE No. 18.—Showing reaction in 24 hours with "secondary rise."

"secondary rise" following a second injection.



CASE No. 13.—Showing marked reaction 12 hours after injection.



ing a normal preliminary temperature is essential, and preliminary temperature records of at least 48 hours should be secured. In order to detect fluctuations in temperature after injection, a systematic temperature record should be kept. (3) Considering our present knowledge of the action of tuberculin, a rise of less than two degrees Fahr., while it may be strongly suggestive is not conclusive, and should not be accepted as an evidence of reaction. (4) Although the reaction generally occurs in from eight to fifteen hours after injection, twenty hours may elapse before the maximum temperature is reached. (5) Secondary rises in temperature are not uncommon, and oscillations in temperature may be noted for some hours. (6) An initial dose of two milligrams of tuberculin is recommended. If reaction is not secured, or is not satisfactory, a second or third injection of four and six milligrams respectively should be used. (7) The test is only applicable to cases where the temperature curve is regular, and is contraindicated in cases where there is an irregular oscillation in temperature. (8) The use of tuberculin for diagnosis offers special advantages to hospitals for the insane. Subjective symptoms in cases of insanity are often difficult to obtain, and physical, sputum and other examinations may be unsatisfactory. In these cases tuberculin may prove invaluable.



FACTORS IN THE PROGNOSIS AND DURATION OF THE ACUTE INSANITIES.¹

By IRWIN H. NEFF, M. D.,

Eastern Michigan Asylum, Pontiac, Michigan.

Notwithstanding that with reasonable certainty we can predict the termination of the acute insanities, the prognosis is generally to be given with reservation.

A recent article on melancholia estimates the recovery rate as over 90 per cent. A corresponding percentage of recoveries from acute mania is given by most authors.

That these results have not been verified in our State asylums I think no asylum physician will doubt. The fault does not lie in inappropriate treatment, neither does it appear to be dependent to any great extent on the duration of the disease previous to admission, and that it does not depend upon the existence of heredity is shown by the accompanying statistics.

It is well established that a certain proportion of the acute cases of insanity terminate in chronicity, attributed often to the long duration of the mental disorder before proper treatment is instituted. I think, however, that all alienists can recall cases of acute mania and melancholia, where there seemingly existed every facility for recovery, which lapsed into a state of incurable insanity. These cases are not always an exception to the rule, as over nine per cent. of all cases of melancholia, and three per cent. of all cases of mania, which I report, are at present under treatment in the asylum.

On attempting to estimate the duration of treatment of these acute psychoses exceptions are also found. Certain prescribed rules regarding these have proved true and have been verified by experience. Departures from these fixed laws, however, occur with varying frequency.

¹ Read at Sixth Meeting of the Association of Assistant Physicians of Hospitals for the Insane, Kankakee, Ill., Sept. 29, 1898.

It occurred to me that a few statistics bearing on these factors might prove of interest and be of value. Deductions are appended to each statistical table.

By the acute insanities I would have it understood that only the simple or generalized psychoses are meant, viz. acute mania and acute melancholia. Mental excitement or depression may be an evolution from other mental disorders, and likewise we may have these symptoms alternating in a cycle. For obvious reasons these varieties are expunged from the following tables.

The following statistics bear upon the acute insanities admitted to the Eastern Michigan Asylum previous to November, 1897. Only cases admitted once are included, and doubtful cases have been eliminated. Recurrent cases are thus avoided, and furthermore incurable cases on admission have, as far as possible, been omitted by determining a point as to the duration of the insanity before admission. All cases of melancholia of over two years' duration, and all cases of mania of over one year's duration at the time of admission to the asylum, have been omitted. It is believed that by this method a sufficient margin has been allowed to make the resulting statistics refer as nearly as possible to the curable mental diseases. Many cases originally diagnosed as acute mania or melancholia, and proven to be erroneously classified, have not been included in the statistical tables. It may add to any interest manifested to remember that the statistics are formed on curable cases. It is reasonable to suppose that if a recurrence or exacerbation of the mental disorder had again developed these patients would have been re-committed to the asylum.

TABLE 1.—*Referring to Termination of all Acute Cases.*

	No. of Cases.	Recov- ered.	Im- proved.	Unim- proved.	Died.	Remain- ing.
Mania	327	190	65	17	43	12
Per cent		58.7	19.6	5.1	12.9	5.1
Melancholia	800	282	250	81	112	75
Per cent		35.2	31.2	10.1	14.	9.3

Recoveries in melancholia, as is well known, occur after many months, and at times when recovery appears practically impossible. It is justly strongly recommended by all alienists that a guarded prognosis should be given in these cases. Recoveries

in mania generally occur earlier, and a chronic or recurrent condition results more rapidly.

In estimating the recovery rate in melancholia it should be borne in mind that undoubtedly many cases are removed in an improved mental state, in which recovery eventually results away from the asylum. This, of course, prevents a record of recovery in the asylum statistics. In mania removal before recovery occurs much less often, as a maniacal patient is much less easily cared for away from the asylum, and besides, excitement rather than depression is the more popular understanding of insanity. This is shown by the above table, as only 19 per cent. of all cases of mania were discharged improved, as against 31.2 per cent. of cases of melancholia removed in an improved condition. For this reason it seems justifiable that one-half of all cases of melancholia discharged improved should be added to the recovery rate, making a percentage of 50 cases recovered. This makes the proportion of recoveries considerably greater than is shown in the official statistics we are compelled to adopt. A consideration of the cases of mania and melancholia admitted by years shows much variance. This, however, is dependent to a great extent upon the movement of population. The percentage of recoveries for the different years gives nothing of value.

TABLE 2.—*Heredity, Mania.*

Heredity.	Male.	Female.	Total.
Grandparents	3	6	9
Parents	30	34	64
Brother or sister	18	19	37
Uncles or aunts	12	16	28
Cousins	2	4	6
Relatives undetermined	1	9	10
	66	88	154

Percentage of mania with insane heredity, 47.

Neuropathic.	Male.	Female.	Total.
Mother	2	4	6
Father	3	2	5
Brother or sister	1	1	2
Undetermined	4	5	9
Consanguinity	1	1	2
	11	13	24

Percentage of mania with insane and neuropathic heredity, 54.4.

Heredity.—Melancholia.

Heredity.	Male.	Female.	Total.
Grandparents	6	9	15
Parents	80	63	143
Brother or sister	32	25	57
Uncles or aunts	22	30	52
Cousins	13	8	21
Relatives undetermined	15	7	22
	168	142	310

Percentage of melancholia with insane heredity, 38.7.

Neuropathic.	Male.	Female.	Total.
Mother	7	10	17
Father	5	6	11
Brother or sister	1	6	7
Undetermined	11	17	28
Consanguinity	0	1	1
	24	40	64

Percentage of melancholia with insane and neuropathic heredity, 46.5.

This table is of considerable interest, as it demonstrates that heredity is far more constant in the curable forms of insanity than would naturally be supposed. For the purpose of comparison the insane and neuropathic hereditary influences have been separated.

Just what constitutes heredity is a matter still undecided. While some would restrict it, for greater accuracy, to a maternal or paternal defect, others more liberal would include all departures from the normal, both inherent and acquired, in all family branches. It is obvious that with this lack of uniformity discrepancies must exist in all statistics relating to heredity. Liberality is the rule when preparing tables of this description in any of our asylums. This would appear justifiable when we consider that reliable preliminary statistics are not obtainable in many cases.

A glance at the results is convincing that in a large portion of the cases of acute mania or melancholia an inherent predisposition exists, thus facilitating the development of the psychoses, whether the exciting cause be emotional, toxic, or dependent upon some other agency.

It will be noted that the percentage of cases of mania with

heredity predominates over the percentage in melancholia. This may be dependent upon the greater dissolution of the mental faculties in mania and the rapidity of the onset of the disease. The present theory of melancholia regards it as a toxic manifestation in many cases, more so than in mania. This may account for the greater amount of heredity in mania.

Another factor for consideration is the neuropathic heredity. This undoubtedly is an important element in mental disorders, and should be incorporated in statistical tables.

TABLE 3.—*Duration of Disease before Admission.*

	Mania.	Melancholia.
Under 1 week	7	3
1 week, under 2	47	24
2 weeks, under 3	51	31
3 weeks, under 1 month	20	20
1 month, under 2	83	128
2 months, under 3	29	76
3 months, under 4	21	100
4 months, under 6	14	71
6 months, under 7	17	90
7 months, under 8	1	23
8 months, under 12	10	32
1 year, under 1½	13	133
1½ years, under 2	0	12
2 years	0	32
Unknown	13	25
	327	800

Thirty-eight per cent. of all cases of mania and 9.7 per cent. of all cases of melancholia were under one month's duration at the time of admission. 44.9 per cent. of all cases of mania and 46.8 per cent. of all cases of melancholia had a duration of from one to six months. 13 per cent. of all cases of mania and 23.5 per cent. of all cases of melancholia had a duration of six months under 1½ years. The table is self-explanatory and supports the opinions of most observers. It must be understood that there is more likelihood of the duration of the disease being correct in the acute mental disorders than in systematized and organic forms of insanity. Changes in character in the early stages of these latter forms of mental disease are not so soon appreciated. In the acute manias and melancholias the time of the onset can be more easily determined. It is apparent that maniacal cases are

of shorter duration when admitted to the asylum. This is possibly due to the restlessness and more active symptoms making it necessary for an early commitment.

TABLE 4.—*Distribution of Sex.*

	Mania.	Melancholia.
Males	153	431
Females	174	369
	<hr/> 327	<hr/> 800
Percentage Males	46.7	53.8
" Females	53.2	46.2

It will be noted that in mania the percentage of females is greater, while in the cases of melancholia the percentage of males predominates.

TABLE 5.—*Results after Six Months' Treatment.*

	Mania.	Melancholia.
Recovered	165	186
Improved	59	148
Unimproved	6	34
Died	43	78

81.5 per cent. of all recoveries from mania occurred after 6 months' treatment.

65.9 per cent. of all recoveries from melancholia occurred after 6 months' treatment.

90 per cent. of all improved from mania occurred after 6 months' treatment.

59.2 per cent. of all improved from melancholia occurred after 6 months' treatment.

35.2 per cent. of all unimproved from mania occurred after 6 months' treatment.

41.9 per cent. of all unimproved from melancholia occurred after 6 months' treatment.

100 per cent. of all deaths from mania occurred after 6 months' treatment.

69.2 per cent. of all deaths from melancholia occurred after 6 months' treatment.

The above table would indicate that maniacal cases have a relatively shorter course than cases of melancholia.

TABLE 6.—*Number of Recoveries with Heredity.*

Mania	93, or 48.9 per cent. of all cases recovered, had hereditary history.
Melancholia .	123, or 43.5 per cent. of all cases recovered, had hereditary history.

The percentage of heredity in recovered cases is considerable. That heredity does not necessarily predict a recurrence of the mental disorder is shown by these cases, as they represent one admission only. The statistics also demonstrate that heredity does not preclude recovery.

CONCLUSIONS.

(1) Acute melancholia is more common than acute mania, the proportion being two to one. (2) The recovery rate in acute mania is higher than that in acute melancholia. (3) Many cases of melancholia discharged improved subsequently recover. (4) Heredity is an important factor in the acute psychoses. Its presence does not preclude recovery, neither does it necessarily cause a recurrence of the insanity. (5) Maniacal cases show a greater percentage of heredity. (6) Melancholia has a relatively longer duration than mania, previous to admission to hospitals for the insane. This may determine in part the larger percentage of recoveries in maniacal cases. (7) The percentage of males is greater in melancholia, while the percentage of females predominates in mania. (8) After six months' treatment there is a relatively larger number of recoveries from mania than from melancholia. (9) A comparison of an equal number of cases of mania and melancholia, with an evidence of hereditary history, shows no marked difference in symptoms, duration, or recovery rate.

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PRACTICAL METHODS IN PHYSIOLOGICAL CHEMISTRY.¹

By RICHARD H. HUTCHINGS, M. D.,

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The increased attention that has been given in recent years to the study of auto-intoxication, and particularly the papers read at the meeting of this Society last year by Drs. Clark, Hill and Hurd, have emphasized the importance of a careful study of the secretions and excretions of the insane as stepping-stones to a rational theory of the nature and cause of certain forms of mental disorder.

The subject is one that concerns us very closely, for the opinion is gaining ground that a very large proportion of diseases of the nervous system, and particularly those symptoms of disordered mentality which we call insanity, are produced by irritation of the higher nervous centers by poisons introduced from without or elaborated within the body. One recent writer, Dr. V. C. Vaughan, says: "It is true, without exception so far as we know, that the excretions of all living things, plants and animals contain substances which are poisonous to the organisms which excrete them. A man may drink only chemically pure water, eat only that food which is free from all adulterations, and breathe only purest air, free from all organic matter, both living and dead, and yet that man's excretions would contain poisons. They originate in the metabolic changes by which the complex organic molecule is split up into simpler compounds. We may suppose—indeed, we have good reason for believing—that the proteid molecule has certain lines of cleavage along which it breaks when certain forces are applied, and that the resulting fragments have also lines of cleavage along which they

¹ Read at the meeting of the American Medico-Psychological Association in St. Louis, Mo., May 12, 1898.

break under certain influences, and so on until the end products—urea, ammonia, water, and carbon dioxide—are reached; also, that some of these intermediate products are highly poisonous, as has been abundantly demonstrated. The fact that the hydrocyanic acid molecule is a frequent constituent of the leucomains is one of great significance. It matters not whether the proteid molecule be broken up by organic ferments, bacteria, or by the unorganized ferments of the digestive juices, or by the cells of the liver, or by those still unknown agencies which induce metabolic changes in all the tissues, in all cases poisons may be formed."

Dr. Van Gieson, in speaking of the influence of auto-poisons in the production of nervous and mental disease, says: "It is my profound conviction that in the course of time the application of this toxic theory of disease to the nervous system is destined to clear away much of the present vagueness and mystery of the causative agents and pathogenesis of mental disease."

The opinion is general that to accomplish anything useful in chemical research long and special training is necessary; that one's entire time will be required to perform the work, and that the apparatus necessary is complicated and expensive. The experience that we have had at the St. Lawrence State Hospital does not uphold this view, for during the past year we have carried on almost constantly work in physiological chemistry in connection with the investigations being done at the State Hospitals' Pathological Institute in New York City, and we have found that we have been enabled to do this work with but little conflict with our regular duties, and it has seemed useful to record our experiences and to tell something of the equipment and work of our laboratory,² even though in doing so there is nothing original that can be said. Our experience will be useful to any one contemplating inaugurating such work.

The methods which we follow are to be found in one or the other of the numerous text-books on physiological chemistry that can be had, but it would require considerable time to elim-

² We take pleasure in recording our indebtedness to Dr. S. Bookman, Associate in Physiological Chemistry in the Pathological Institute, New York, for valuable assistance in the organization and equipment of our laboratory.

inate some of the methods that are not satisfactory, and to arrange a system that would give satisfactory results.

Our work has been done by the regular staff, and has not been permitted to interfere with the other duties of an assistant physician, and it seems that such work can be carried on in nearly any hospital.

The laboratory is in the executive building, convenient to the wards and adjoins the dispensary. If occasion requires, the apothecary can be called upon for assistance during a part of the day, and when the assistant physicians are engaged elsewhere, he can, by going in occasionally, see that the temperature of the oven remains uniform and that such processes as filtration, evaporation and digestion, which require considerable time, go on without accident. As a matter of fact, he is seldom needed with us, but in a hospital where the staff is small, the apothecary, familiar as he must be with many of the technical details of chemistry, may be made a useful ally.

The front of the room is occupied by a large window with a shelf in front for microscopical work and for titrating and delicate color tests of all kinds. Down the middle of the room runs a long work table 40 inches wide and 36 inches high, the top of which is slate, and it has a shelf beneath for bottles. The walls are shelved to a convenient height, and there is a cabinet for the more delicate apparatus and glassware. An indispensable feature of every laboratory of this kind is a ventilated cupboard, or a hood, to carry off irritating vapors. Our cupboard was made in a chimney; an arch was cut a little higher than the head and an ordinary window-sash fitted to the front balanced upon weights. Its floor is covered with galvanized iron and is about 36 inches above the floor of the room.

It is necessary for two or more members of the staff to work together. The several determinations can be arranged to begin in the morning at a convenient hour, say nine o'clock, when the time in the laboratory required will be about an hour; then little or nothing need be done until near noon, when half an hour's attention should be given the work, and again in the afternoon at two o'clock the entire work can be finished up within two hours. With the exception of the first part, the early morning hour, it would only be necessary for one man to be in the laboratory at

once, though of course some of the work can be done more rapidly by two than by one. The day may be divided up among the several men or they can work on alternate days.

When beginning the work of the day it is a good practice to get all the determinations started as early as possible; this particularly applies to those which require several hours for their completion, for while waiting for one solution to boil another can be filtered, and by working on each in turn all can progress through successive steps to completion without waste of time. To do this successfully, each flask and beaker must be labeled to show what its contents are and in what stage. This can be done quite simply; each complete specimen when received is given an accession number, for example 20, and an entry is made in the accession book opposite the number showing the date, name of the patient, the disease, and remarks of his condition during the day. This number is placed upon the jar containing the specimen and upon every dish or beaker into which any of it is measured. To this mark of identity is added another to show the determinations as "Cl" for chlorides, "Hu" for uric acid, and so on; if there are several stages, the final numbers 1, 2 or 3 show in which it is. A filter bearing the mark "20 S 2" would be known to contain the second or ethereal sulphates from specimen No. 20.

It is useless to undertake any quantitative determination on a specimen of urine of less than twenty-four hours, as its composition varies with sleep and waking and with digestion and fasting. The specimens, as often as passed, should be at once measured by the nurse, the reaction tested, the bottle labeled with the time, quantity and reaction, and brought to the laboratory to be put upon ice. The last specimen should be taken on rising in the morning and should be brought to the laboratory in time to begin work about nine o'clock.

The several specimens are then poured into a graduated jar and are well mixed. The reaction of the whole is taken and the quantity noted as a check on the separate measurements. From this time the mixed urine is looked upon as a single specimen, and it is particularly important to know the exact quantity to insure correctness in the several results. The specific gravity is tested by the urinometer, or, better, by the specific gravity

bottle. Five cc. are measured from a pipette into a platinum dish of known weight and put in the oven and evaporated to dryness for the total solids. After this the specimen is filtered, as the succeeding tests are best made with filtered urine.

The following are the methods we employ for the estimation of the constituents of urine:

CHLORIDES.—Place 10 cc. of filtered urine in a porcelain dish and add a few small crystals of sodium carbonate and sodium nitrate, after which it is evaporated to dryness over a water-bath. The dish is then heated gradually over a Bunsen flame until the residue ignites and burns away. The heat is continued until the residue assumes a whitish color, but the temperature should not be sufficiently high to volatilize the salts. After the dish has been cooled, 20 cc. of water are added, together with a few drops of nitric acid, which is afterward neutralized by calcium carbonate. The solution is then boiled, filtered and washed. To the clear filtrate a drop or two of solution of potassium chromate are added for an indicator and titrated with a 2 per cent. solution of nitrate of silver. This is done by adding to the filtrate the nitrate of silver solution from a graduated burette, drop by drop, with constant stirring, until a reddish tinge occurs which does not disappear. This indicates that the process is completed. Now read off from the burette the number of cc. of silver solution that have been used and multiply the result by 6.88, which gives the number of milligrammes of sodium chloride in the 10 cc. of urine employed.

URIC ACID.—Place 50 cc. of filtered urine in a beaker and add 5 cc. of ammonio-magnesium solution.^a It is then heated over a water-bath for about half an hour and titrated with a N/50 solution of nitrate of silver, using a drop of ammonium sulphide as an indicator. This titration requires considerable care, as the process must be completed before the urine is cooled and after adding the nitrate of silver. The indicator cannot be applied until the urine has been filtered. This obstacle is overcome by

^a *Ammonio-magnesium solution:*

20 grams	magnesium sulphate,
30 grams	ammonium chloride,
125 cc.	ammonium hydrate,
125 cc.	distilled water.

having a very small filter, which will hold five or six drops. One cc. of the silver solution is added to the urine, and, after stirring, a few drops of the solution are removed in a pipette and filtered through the small filter and a drop of the clear filtrate permitted to fall upon a drop of ammonium sulphide upon a white surface. If the ammonium sulphide is colored dark, it shows that too much of the solution has been added, but if no result is obtained, the process is continued cautiously, adding $\frac{1}{2}$ cc. of silver solution at a time until a faint color is produced in the indicator. The number of cc. of silver solution employed is then read off from the burette, $\frac{1}{2}$ cc. is deducted to correct a slight error, and the number multiplied by 3.36, the product of which represents the number of milligrammes of uric acid in the urine employed.

PHOSPHATES.—Take 50 cc. of filtered urine and add 5 cc. of a standard solution of sodium acetate. It is then heated on the water-bath about half an hour and titrated while hot with normal solution of uranium nitrate until a drop of the mixture gives a brown color with a drop of potassium ferrocyanide on a porcelain slab. Multiply the number of cc. of solution used by .005, which gives the amount of phosphoric acid in 50 cc. of urine.

SULPHATES.—Measure 50 cc. of filtered urine into a beaker and add 10 cc. of 30 per cent. glacial acetic acid. This is then placed upon the water-bath for twenty minutes and 15 cc. of hot saturated solution of barium chloride are added with constant stirring. The heat is continued for a few minutes and the beaker is then put aside in the ice-box until cold. It is then filtered through an ashless filter and well washed with hot distilled water and dilute HCl until a drop of the filtrate gives no cloudiness upon addition of diluted sulphuric acid. The filtrate and washings are put aside and the filter containing the precipitate is removed carefully with a metal spatula and placed in a platinum crucible of known weight and heated over a Bunsen flame until the ash is white. After cooling, a few drops of nitric acid and of sulphuric acid are added and the crucible is again heated, at first cautiously until the fumes disappear, and then to redness, after which it is cooled in a desiccator and weighed. The increase of weight represents the preformed sulphates in the form of sulphate of barium. The filtrate and washings which were put aside are mixed with 15 cc. concentrated hydrochloric acid

and boiled for five minutes and put in the ice-box to cool, then filtered through an ashless filter and burned in a platinum crucible and weighed as described for the preformed sulphates.

TOTAL SOLIDS.—5 cc. of unfiltered urine are carefully measured into a platinum dish of known weight and placed in the oven at a temperature of 95 to 100 degrees for five hours, then removed, cooled in the desiccator and weighed. The weight, after deducting the weight of the dish, represents the total solids in 5 cc. of urine employed. The dish is then heated to dull redness over the flame until all moisture is expelled; when cool, a few drops of nitric acid are added and it is again heated until the residue is white. Finally a few drops of sulphuric acid are added, and after heating to redness again it is cooled in a desiccator and weighed. The increase of weight after subtracting the weight of the dish represents the inorganic solids as sulphates.

AMMONIA.—20 cc. of filtered urine are measured into a shallow dish and mixed with 10 cc. milk of lime and placed under a bell jar with 10 cc. deci-normal solution of sulphuric acid in another dish. Everything should be made ready and the two dishes instantly covered by the bell jar as soon as the lime is added, or some of the ammonia will be lost. It is left undisturbed for 48 hours, when the acid is titrated with deci-normal solution of sodium hydrate and the diminished acidity is evidence of the quantity of ammonia absorbed.

UREA.—For the estimation of urea, we employ the method of Prof. Hüfner, which consists in decomposing the urea into water, carbonic acid and nitrogen by means of an alkaline solution of hypobromite of soda. The water and carbonic acid are dissolved in the solution, and the nitrogen which collects in a graduated tube is measured and from it the urea is estimated. 35.4 cc. of nitrogen represents 0.1 gramme of urea.

If the urine contains albumen it must be acidified, boiled and filtered before applying this test.

SODA AND POTASH.—The salts of potassium and sodium can be conveniently estimated together by the following method: To 50 cc. of urine are added an equal volume of saturated solution of barium hydrate; it is allowed to stand for a short time and is filtered. 50 cc. of the filtrate are collected and evaporated to dryness in a porcelain dish over the water-bath and the residue

gently heated over the flame until the organic matter is destroyed. When cold, dissolve in hot water and add ammonia carbonate as long as a precipitate occurs, then filter and wash. The filtrate is acidified with hydrochloric acid and evaporated to dryness in a weighed crucible on the water-bath and then in the flame until white fumes cease. The weight, minus the weight of the crucible, is that of the sodium and potassium in the form of chlorides. To separate the two salts, they are dissolved in a little water and platinic chloride added to excess and the mixture evaporated to half its volume. A few cc. of alcohol are added, which dissolves only the sodium salt, the potassium salt remaining unaffected. They are separated by filtration and washing with alcohol; the insoluble potassium salt which remains in the filter is weighed after drying carefully, and its weight deducted from the weight of the combined salts gives the weight of the soda. 100 mg. of potassic chloride of platinum is equivalent to 30.51 mg. of chloride of potassium.

TOTAL NITROGEN.—5 cc. of urine are mixed in a Kjeldahl flask with 15 cc. of pure concentrated sulphuric acid and digested over a low flame until the fumes cease to come off and the liquid assumes a straw color. A few small crystals of permanganate of potassium are then added to complete oxidation, and after five minutes further heating the flask is removed and cooled. It is then diluted cautiously with water, mixed in a distilling flask with an excess of caustic soda solution, and distilled into a known quantity of deci-normal solution of sulphuric acid. When the mixture in the distilling flask has been reduced to half its volume the process is completed and the quantity of nitrogen (in the form of ammonia) determined by titrating the deci-normal acid with a corresponding solution of soda.

TOXICITY.—The toxicity of urine is best tested by its poisonous effect when injected into the circulation of animals—white rabbits are probably best for this purpose. Young adults should be selected, free from injury and of lively disposition. The following observations are noted before beginning the experiment, viz. weight, temperature, pulse, respiration and the size of the pupils.

The syringe we use was made for the purpose and can be had in the market. The barrel is of glass, 50 cc. capacity and

graduated to 5 cc.; the needle, the size of an ordinary hypodermic needle, is connected to the barrel by a short piece of india-rubber tubing.

The rabbit is fastened to the table or a board in such a way that it cannot struggle violently and the needle inserted in one of the superficial veins, being careful that no air is in the syringe or tube. The marginal vein of the ear is usually selected. It can be seen in rabbits with white ears by holding the ear to the light. In rabbits with black ears, it is sometimes difficult to find. It runs one-eighth of an inch from the border. Having made sure that the needle is well in the vein, the exact time is noted and the injection begun. The rate of injection should be uniform and about 5 cc. per minute. As the experiment proceeds, notes should be made of the symptoms shown, noting the time and the amount of the urine injected. The commonest symptoms observed are changes in the frequency and rhythm of the respirations, contraction or dilation of the pupils, spasms of groups of muscles and general convulsions, which frequently end in death. It is better to continue the injection until death occurs, as no accurate data are obtained if the animal survives.

The toxicity of urine varies considerably in different individuals and in the same individual with variations of diet and exercise, and no attempt to establish a standard need be made without taking these factors into consideration. According to Bouchard, who is perhaps our best authority, 30-60 cc. of normal urine will cause the death of a rabbit weighing one kilo, and the same author estimates that the average human being would survive about 52 hours if the renal functions were entirely suspended.

The nature of this auto-poison has been long in doubt. It has been thought at different times to be urea, uric acid, ammonia and the potassium salts. Schiffer has shown that urine is still toxic, though in less degree, when the inorganic salts have been removed, and Lepine seems to have arrived very near the truth when he states that 80 to 85 per cent. of the toxicity of normal urine is due to inorganic salts and 15 to 20 per cent. to organic constituents. No reliable data have yet been obtained regarding the toxicity of urine in disease.

TOXICITY OF BLOOD.—The blood is obtained from the patient's arm with the usual antiseptic precautions, and is collected

in a sterilized flask; when sufficient has been obtained it is put aside in the refrigerator for 24 or 30 hours until a firm clot forms and settles to the bottom. The clear serum is poured off and filtered through a Berkfeldt filter; the following tests can then be applied in the same manner as for the urine. Specific gravity, urea, uric acid, chlorides and total nitrogen, and the toxicity determined by injection into the vein of a rabbit. The toxicity of the blood is usually found to be greater than of the urine and a smaller quantity will be required for the experiment, but it is well to select for the purpose a rabbit of not more than two pounds weight.

This important subject is still but little understood; there yet remains the important task of distinguishing auto-toxic disease when it is met with at the bedside, of tracing to its source the *materies morbi*, whether it originates in the intestinal canal or in some gland whose secretion is vitiated or suppressed, or whether in the nervous structures themselves, and suggesting methods of combating its deleterious effects. The solution of these problems can only come when the observations of many investigators can be collected and analyzed. It is safe to say that every hospital contains patients whose insanity is considered to belong to this category, yet reports of such cases are seldom seen in current literature. I would urge upon those who are establishing pathological laboratories to provide also an equipment for the accurate study of the blood and other fluids during life, feeling sure that in no other way can an intelligent construction be placed upon the delicate changes in nervous structure which are frequently revealed by the microscope.

CLINICAL CASES I.

ACUTE CONFUSIONAL EXCITEMENT, WITH THE BRAIN LESIONS OF PROGRESSIVE PARALYSIS AND CONTRACTED KIDNEY.

By HENRY J. BERKLEY, M. D.,

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A. B., widow, aet. 42, temperate, was admitted to City Asylum January 8, 1898, suffering from a confusional form of sub-acute mania.

The family history given by one of her sisters is absolutely negative as to nervous or mental diseases. The personal history of the patient's husband could not be obtained. There was no obtainable record of miscarriages. The past history of the patient showed that she had not been troubled by any previous form of alienation, and had lived in a private family until a few weeks before as a domestic. Four weeks ago she lost her only child, a son, and soon afterwards became despondent, and her physical health suffered greatly. It was soon noticed by those around her that her character was undergoing alteration, and that she was sleepless, irritable, and desirous of being left alone. The maniacal outburst, which seems to have been of a very mild nature, did not take place until three days before she was sent to the institution.

The examination on admission showed a well-built, but physically very much run-down woman of 5 feet 8 inches in height, without traces of somatic disease other than simple anæmia, with no marked cranial deformities, and no signs of syphilis. The blood examination gave a very moderate polynuclear leucocytosis. She was considerably excited, the excitement being chiefly of a motor type, such as tearing her clothing, striking the doors or interfering with the other patients, and if left alone she would

amuse herself by destroying linen or any other material which she could lay hands upon, but never injuring herself. It was with some difficulty that she could be induced to speak, but on persuasion she talked a little in a rambling, incoherent manner, but could not remember her name, age, and did not recognize her surroundings. Her only connected speech was a jargon about the Catholics (she was a member of that church), who were coming to save her from what she could not tell. She also imagined that all the patients on the ward were Catholics, and called the nurse by the name of a Sister of Charity. These lasted but a few days and were her only ascertainable delusions. Within a period of a few hours she would be mildly excited, and then as mildly depressed, but the most striking symptom at all times was an intense mental confusion, out of which she never came, a reduction entirely inconsistent with the short duration of the mental trouble. Hallucinations were watched for but were never noticed.

The physical examination showed the pupils to be equal, 2 mm., reactive to light and accommodation. The motor functions of the extrinsic muscles were also normal. The deep reflexes were exalted; those of the skin natural. Ordinary sensation was present. There was perfect, though slow, co-ordination of the facial and hand muscles; no disturbance of equilibrium on standing with closed eyes, and the special senses, as far as could be tested, were natural. Articulation was slow, drawling, but there was no actual defect. The gait was a little unsteady, which was ascribed to her very weak condition. The circulation was impaired; the pulse feeble; arteries dilated. Temperature was not elevated. The urine the day after admission gave no traces of albumen or sugar, but showed an increase above the normal of urea and uric acid. Indican and skatol were absent. The specific gravity was 1023.

After being in the house for some time she became much more talkative, the motor excitement decreasing, though not entirely subsiding. Her speech consisted of entirely disconnected words. She did regain the remembrance of her name after it had been frequently repeated to her, and retained it, but otherwise remained as mentally confused as upon admission.

Steadily her strength decreased, and with it came a degree

of muscular inco-ordination, amounting to an ataxia of the upper extremities.

In the first days of May she became bedridden. The urine, which had been several times examined between the date of admission and this time, now showed diminution of the chlorides and phosphates, the presence of an excess of urea, uric acid, indican, a trace of albumen, and numerous granular, hyaline, and epithelial casts.

Bed-sores formed within a few days over the sacral region and progressed rapidly as the circulation decreased in force. On the 17th of May she had an epileptiform seizure with spasmodic twitchings of the arm, leg, and lower facial muscles of the right side. She never afterwards recovered full consciousness. These muscular spasms were repeated at intervals, and in a few days became universal. Death occurred on May 30, 1898. Never was there any amblyopia, katatonic symptoms, or the evidences of heart-lesion or œdema.

AUTOPSY.—The autopsy was made 15 hours after decease. Rigor mortis was present in the inferior but not in the superior extremities. Besides the bed-sores there was nothing to note upon the exterior of the body.

The cranial bones showed no disease. The dura peeled off readily from the bones, and was non-vascular. The subdural space contained a little fluid. The pia was very slightly gelatinous over the mid-regions of the brain, but showed no undue adherence to the cortex, neither were its meshes filled with distended and engorged vessels. The encephalon with the soft membranes weighed 1070 grams. Except for a few atheromatous patches the basal vessels showed no signs of disease; they were not diffusely thickened and collapsed on cross-section. The only anomaly in the formation of the fissures was that the right occipito-parietal sulcus penetrated into the external surface of the hemisphere to an unusual extent. On section the gray matter showed distinctly from the white, and was of moderate depth. The substance of the centrum ovale and ganglia was rather anæmic than hyperæmic. The ventricles were not dilated, contained little fluid, and their ependyma was not thickened. The choroid plexuses were moderately granular. The cerebellum, pons, medulla, and cord showed no focal or general lesion. So negative was the autopsy, so far as the brain was concerned, that bits of the ascending frontal convolution in its upper third only were preserved for after-examination in 96 per cent. alcohol.

The heart weighed 215 grams. The thickness of the left ventricle wall was 10 mm. The aorta near the heart and coronary arteries showed

no arterio-sclerosis, though at the arch a small patch of atheroma was noted. The valves, aortic and mitral, were perfect.

Both lungs showed emphysematous patches, and in the lower lobe on the left side there was some hypostatic congestion.

The spleen weighed 95 grams. The capsule was very adherent to the parenchyma. This substance was very resistant to the knife.

Each kidney weighed 120 grams. The capsules were firmly adherent to the cortical portion which was reduced to 2 mm. in thickness. The liver weighed 1010 grams, and was normal in appearance.

The staining of the brain tissue was made with methylene-blue according to Nissl, iron-hematoxylin, Van Gieson's picric-fuchsin, hematoxylin-eosin, and safranin.

Pia Mater.—The changes in the pial membrane are slight. There is a minor degree of proliferation of round nuclei, and the vessels show hyaline degeneration of the media of the arteries, which, however, is not universal, but only in individual arteries here and there. The intima in these diseased vessels is slightly thickened, the change being principally in the subendothelial tissue. Lesions in the adventitia are not marked. At only one point was an adhesion between the pia and brain surface noticed, and that near a large vein. The lymph spaces of the pia are comparatively free from debris, but do contain some hematoidin crystals.

The Cortex.—Vascular lesions. These are well marked everywhere in the sections, though more intense in some places than in others. The perivascular spaces are immensely widened, but contain nothing beyond a few hematoidin crystals. The intravascular space is also distended focally by accumulations of crystals and hematoidin debris.

The arteries and veins present quite a variety of lesions, periarterial changes predominating. This inflammation of the external coat in itself is very variable. In some of the vessels it is just beginning, and has a well-marked nodular appearance; in others, while recent, it has extended around the whole circumference of the vessel, nearly filling the dilated perivascular space with round-cell proliferation; but, though florid, it has left sufficient space for the lymph flow. The media of these moderately diseased vessels is sometimes almost normal, the muscular cells with their nuclei being distinct; while in others there is a beginning break-down of the muscular lamina, the cell protoplasm appearing hyaline, the nuclei shrivelled and distorted. Other vessels show a more pronounced proliferation of the round elements with thickening of the fibrous substance of the adventitia and complete filling up of the extravascular space. The intima in none of these several forms is decidedly thickened or otherwise disturbed, and the nuclei are well stained and apparently healthy.

There is still another and peculiar form of periarteritis noticeable in a considerable number of the smaller arterioles. The endothelial and subendothelial elements are not markedly increased, and are well stained, but outwardly there is not the slightest trace of a muscular layer to be found, while in its place lies a trabeculated tissue, with slight proliferation

of nucleated elements lying in a pale, faintly striated, or homogeneous matrix. The adventitial layer now either partially or completely fills the perivascular space, and, now and then, within it are found one or more large lymph-splittings, this especially being the case when the canal is completely filled by the new growth. The lymph passages in the neoplasm are nearly always lined by a membrane of appreciable thickness, containing a few nuclei. The nucleated and fibrillary tissues of the adventitia show no evidences of necrosis of the cells, but on the contrary are well stained, and the nuclei show chromatin granules. The lumen of the arteriole is invariably pushed to one side of the perivascular space, and is sometimes closely applied to its margin.

The veins show everywhere a moderate degree of periarteritis, but their inner lamina is not disturbed. The capillaries are much widened and irregular in outline, their nuclei are few in numbers, but show no evidences of a degenerative process occurring in them.

In some of the larger arteries the changes in the media were more pronounced than those above described. The nuclei of the muscular fibres had entirely disappeared, and the layer is converted into a slightly fibrillated substance staining brown-yellow with picric acid. In these vessels there is more decided implication of the innermost lamina, with some narrowing of the lumen from fibrillary thickening of the subendothelial tissue. Only two arteries were found stopped by blood thrombi.

The arteries and veins on the immediate surface of the brain show nowhere the same intensity of disease as those lower situated. The height of the vascular morbid process is in the third and fourth cellular layers. A number of irregular bulgings from one side of an artery were also noticed.

Nerve-cell lesions are wide-spread and entirely of an atrophic order. The protoplasm of more than one-half of all the larger cells is shrunken, the apical process has dwindled to a stump, often having its apex bent upon itself in hook form, while the other dendrites are almost equally affected. The cell space, after allowing for alcohol-shrinkage, is enormously widened, but contains no lymphocytes, and often the reduced protoplasm occupies but one small corner of the space. Here and there cells are seen that have entirely lost their prolongations, and are lying almost free in the space. The cells show finely granular with hematoxylin and safranin, while scattered among the fine molecular granules are slightly larger ones of comma form. The normal pigment is not increased but rather diminished. The nuclei also show decided changes of an atrophic order. The nucleus is indistinct, irregular in outline, or, though regular, shows uniform shrinkage with departures from the normal in the character of its caroplasmic contents. The chromatin threads are never seen, but the nuclear substance is filled with rather coarse, deeply-stained particles of angular character, which may be numerous or scant in the several cells. The deportment of the nucleolus is varied. It may be enlarged and irregular, or its place occupied by a vacuole, or it may have entirely disappeared, in which event the entire nucleus is greatly atrophied. The

shrinkage of the cell protoplasm is in nearly all the bodies greater in proportion than that of the nucleus, and the amount of atrophy in the latter does not become immediately apparent. The nucleus is sometimes centrally situated, more frequently driven to one side of the protoplasmic margin.

With the Nissl methylene-blue, the cellular degeneration is as distinct and profound as by the other dyes. Very few cells show the normal granula, but are stained a uniform blue, and that of a very deep shade. Within the protoplasm a few very small angular particles are seen irregularly scattered through the substance, which is greatly shrunken. Occasionally this shrinkage is very great, but the reduced nucleus remains always visible. The nucleus in less degenerated cells is often covered by the dense blue stained protoplasm so as to be indistinct, unless very carefully looked for when it becomes apparent. The nuclear changes are of the same order as those already described, though less distinct from the imperfections peculiar to the dye.

Neuroglia Elements.—Everywhere, but particularly in the stratum zonale, are numerous stellate cells, with prominent bodies and tentacles. The body is stained yellowish by safranin, differing from anything in the adjacent tissue; also their extensions, while deeper stained, are equally prominent, running in fine, thread-like lines long distances from the cellular body. On the whole, the neuroglia elements do not seem to have undergone proliferation, but are simply swollen and unduly prominent. They are visible by reason of their peculiar staining throughout all the deeper cellular layers, and in the white masses at the foot of the convolutions. The neuroglia nuclei are distinct, well stained both in membrane and chromatin contents. Nothing definite could be determined about the vascular elements.

There was no reason to doubt the very brief history of the case given by the sister of the patient in respect to the short duration of the mental symptoms and their immediate cause, the loss of the child. The patient was very anæmic when admitted to the hospital, and this, together with the mental shock, was thought at the time to be sufficient to induce the departure from mental health. The somatic symptoms also were misleading. True, the reflexes were slightly above normal, but increase of the knee-jerk is found in a considerable number of instances of anæmic insanity, and pupillary symptoms were absent. Articulation, while drawling, showed none of the drunken defect of the paralytic, but rather the inhibition so often noticed in cases of mental confusion. This last symptom was the prominent feature of the case, and resembled so greatly that of the intoxication psychoses that a careful search was made in the urine for the ethereal sulphates or other poison.

Perhaps had the patient been a man the progressive character of the disease would have excited the suspicion of an atypical form of paresis, but in a woman the functional psychoses are so much more frequent than the organic that it was at first unhesitatingly diagnosed as a functional trouble, and only when the patient tended downward under an increased supply of food and tonics did suspicion become aroused.

Only toward the end of life did the patient manifest indications of grave renal trouble, which eventually ended in her death after a series of convulsions simulating in many respects the ordinary epileptiform crises of the paralytic, and only differentiated from them by the long-continued coma, with continuance of the convulsive movements. A typical uræmic respiration was not observed.

While there are no pathological lesions pathognomonic of paretic dementia, the lesions of the cerebral arteries, chiefly in the form of periarteritis, with secondary implication of the media and intima, and dilatation of the intra- and extravascular spaces, are among the most characteristic. Next to these are the atrophic lesions of the nerve cells, which may assume a number of forms according to the slight or severe degree of stoppage of the nutrient supply and difficulty in the return to the thorax of the effete plasma. The neuroglia lesions found count for little, but they are quite as well marked as in the majority of the demented types of paresis, where there have been few previous indications of an acute cortical trouble. The same may be said of the alterations in the soft membranes of the brain, which certainly were as well marked as are found in the milder varieties of paresis.

From a pathological standpoint there is but one diagnosis to make as to the nature of the cerebral disease present in this patient, but unfortunately it offers a choice between several poisons. There were no clinical indications from first to last of the presence of syphilis, but in the face of the rather characteristic lesions of the brain vessels this toxin cannot be definitely excluded. Furthermore, we had to deal with a form of mental alienation which is certainly uncommon in paresis, but which may be readily induced by the presence of other poisons than the syphilitic circulating through the blood-channels. Whether

the renal lesions, which, from the appearance of the kidneys must have been of long standing, were sufficient to store up in the tissues and blood uric acid and its derivatives in sufficient quantity to completely overwhelm the functions of the cerebrum, may be doubted. There was until a few days before death a fair amount of urine secreted, and this contained at all times rather an excess than diminution of urea and uric acid.

Despite these facts, I am inclined to attribute the mental symptoms to an overpowering of the brain functions by an excessive amount of waste tissue products circulating with the blood, and disturbing the general nutrition of the arteries and nerve elements; perhaps, also, there was a storage of irritating poisons (ammonium carbamate) that reacted upon the cortical vascular tissues in the same way as a luetic poison would.

The case, while not clear, opens up the very grave question, whether we have not been overlooking in our examinations of paretics and other organic dementes, the fact that lesions of the renal organs may be a frequent etiological factor in the causation of a portion of the symptoms that we recognize as the clinical picture of progressive dementias, and the kidney lesion may be primary, and not secondary, to the brain disease. Nephritis, as we all know, is comparatively frequent in progressive paresis, but usually begins long after the first appearance of the mental alteration, and cannot play any other part than that of an intensifier of the final symptoms. In the present instance there was only the most trifling disease of the great vessels either of the chest or cranium and no hypertrophy of the heart, or anything else indicative of other than primary disease of the renal organs.

While mental confusion is not the uncommon sequence of uræmic poisoning, it ordinarily is seen toward the end-stage of the disease, but in this instance we apparently have the disorder beginning several months before any indication of renal disease could be ascertained. Psychoses are not infrequently met with when there is contracted kidney, but not of the present type. (Vide Honigman, *Zeitschrift für prakt. Aerzte*, Oct., 1896; and Bischoff, *Wiener Klin. Wochenschrift*, 1898.)

HYDROTHERAPY IN THE TREATMENT OF MENTAL DISEASES.¹

By H. ROLAND NILES, M. D.,

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It is human nature to treat slightly simple, every-day curative agencies and to exaggerate the healing virtues of those concerning which we know little. This fact is perhaps responsible that so much remains to be done to secure for hydrotherapy the eminent place which it deserves in the treatment of disease. Its increasing importance has led the University of Heidelberg to provide in its annual appropriations for a course of lectures on hydrotherapeutics. Other universities have included this branch in the course on general medicine.

Baths of various forms have long held a place in the treatment of mental as well as general diseases, and the physiological action of water applied in various ways and at different temperatures has been studied to some extent, but by no means exhaustively. Experiments have shown that various tissues of the body react differently toward water of different degrees of temperature. Connective tissue contracts under the influence of cold water and expands when hot water is applied. Elastic tissue reacts in a reverse manner. Experiments made with the æsthesiometer have proved that hot water will increase and cold water diminish the excitability of the cutaneous nerve endings. Besides these local effects we have the reflex effects produced upon the vasomotor centers. Moderate chilling will cause contractions of the smaller vessels, while moderately hot water will cause their dilatation. That we have to deal with reflex phenomena is further proven by the fact that the contraction of the capillaries, smaller veins and arteries is not confined to the region to which cold is

¹ Read before the Association of Assistant Physicians of Hospitals for the Insane, at Kankakee, Ill., Sept. 28-29, 1898.

applied, but is observed throughout the vascular system. If, for example, after a sphygmograph is applied to the radial artery at the wrist and a normal tracing taken cold be applied to some remote part of the body, a second tracing will record a marked contraction of the radial vessel.

The effects of water are produced chiefly through the physiological action of heat and cold upon the peripheral nervous system, and in a reflex way upon vasomotor and trophic centers. While both these effects must more or less overlap each other, and can in practice scarcely be separated, it is well to keep this physiological distinction in mind.

Cold applications cause a contraction of the blood-vessels followed by dilatation. There is usually increased tissue metamorphosis, increased secretion of urine, and an increase in the excretion of carbon-dioxide. In a non-febrile patient there is slight abstraction of heat, but the heat centers are stimulated so that the total result is an increase of body heat. A sense of exhilaration and increased muscular power follows the cold bath, providing the bath be not too cold or too prolonged. The determination of time and temperature will vary with different people. Some sensitive and feeble patients can never be made to react. Dr. Dana has said: "Cold baths systematically taken furnish a kind of vaso-motor gymnastics. The neuro-mechanism controlling the blood-vessels becomes more supple, and the tendency to local congestion of the viscera and mucous membranes is prevented." Warm baths increase the circulation in the skin by at once dilating peripheral vessels, withdraw blood from the central organs, increase nitrogenous metabolism and the exhalation of carbon-dioxide. Pulse and respiration are increased, nervous excitement is lessened and the general effect is to cause sedation and a feeling of languor. There are limitations, however, to the usefulness of the hot bath. Persistence in hot bathing on account of the marked sudation causes weakness, loss of flesh, rapid heart action, nervousness and insomnia and defeats the end for which it was sought. In a recent article in the *Brooklyn Medical Journal*, it was claimed that heat applied over certain sympathetic ganglia caused a contraction of the arteries in that region controlled by the centers over which the application was made. Hyperemic headaches and nasal hemorrhages

were relieved by the hot-water bag applied over the cervical and upper dorsal vertebrae. The pulmonary circulation was similarly affected by applications to the dorsal region, and the abdominal and pelvic organs by heat to the dorso-lumbar sympathetic. Cold in like manner applied caused dilatation of deep-seated vessels.

While it will no doubt be but the narration of common knowledge, some of the chief methods of application might be briefly mentioned. Dr. Forbes Winslow makes the rather sweeping statement in regard to the Turkish bath that: "It may be considered in fact to be a complete *materia medica* in itself." While we might restrict this statement somewhat, the Turkish bath is without doubt an agent of great value in the treatment of mental diseases. The two-fold functions of the skin—secretion and absorption—are stimulated in a marked degree. The open pores permit of the absorption of a greater amount of oxygen, and the profuse perspiration relieves the circulation of the products of metabolism. Its eliminative effect makes it very useful in toxic insanities. Proceeding upon the theory of the increased toxicity of the excretions just preceding an epileptic seizure, the Turkish bath has been used extensively and satisfactorily in epilepsy with a view to eliminating the toxins by way of the skin. Its general use is recommended, and particularly whenever prodromal symptoms manifest themselves. Alcoholics derive great benefit from it, also cases of melancholia with dry, hot skin. Some cases of excitement are much relieved, but care should be exercised in their selection. In excitement accompanied by profound nervous and vascular depression the Turkish bath is contraindicated. While a state of quietude might be obtained it would be at the expense of depleted nerve centers and an exhausted heart muscle. Demented and melancholic patients with subnormal temperature and vaso-paretic symptoms are benefited to some extent by a course of Turkish baths. Vaso-motor tone is in a degree restored, temperature becomes normal and the pulse stronger. There is a primary loss of weight, but this is followed by increased appetite with an ultimate gain in flesh. The slight headache and sensation of fullness that sometimes accompanies the Turkish bath can be for the most part avoided by placing the feet in hot water and applying an ice bag or cold

towel to the head. On account of the increased force of the heart's contraction and the increased arterial tension, care must be observed in subjecting to the Turkish bath a patient with an enfeebled heart muscle or degenerated vessels.

Russian baths are in most respects similar in their effect. The Turkish bath favors the highest degree of perspiration, while the vapor of the Russian bath retards it somewhat. The Russian bath is less depressing and depleting than the Turkish and can be applied in cases in which the powers of resistance are more reduced. In our practice, the Russian bath, supplemented with the salt rub, has in a large measure supplanted the Turkish bath.

The technique of the bath varies necessarily according to the condition of the patient. Ordinarily the patient enters the steam-room at a temperature of about one hundred degrees. Here he remains from ten to twenty minutes, during which time the temperature is raised to one hundred and ten or one hundred and fifteen degrees. A tepid shower bath is then taken, followed by a soap shampoo. The soap is removed by another shower bath, when the whole cutaneous surface is briskly rubbed with fine salt thoroughly moistened. The room is once more filled with steam until the perspiration starts, when the patient is again placed in the shower bath, the temperature of which is gradually reduced to sixty, fifty and even forty degrees and continued until the patient is thoroughly cooled. He is then taken to the massage table, where an alcohol or cocoa butter rub or massage, with or without general faradization, may be given. This bath leaves an equalized circulation, a tranquil state of the nervous system, the skin smooth, absolutely free from the products of excretion and with a warmth and glow that can be obtained in no other way. Upon the thoroughness of the cooling process depend many of the good effects of the bath. If but imperfectly cooled, the face is flushed and there is a sensation of fullness and discomfort in the head. On general principles this bath is applicable to the great majority of cases, but is especially beneficial to those recommended for the Turkish bath, and can be given with greater safety in conditions of more profound nervous and vascular depression; to neurasthenics, hysterical patients, in fact, all except extreme cases, such as advanced parietic dementia, excitement with great prostration and feeble melancholics.

The limited time at my command for the preparation of this paper prevents my giving in detail the many advantages to be derived from the various other hydrotherapeutic measures. Douches, showers and sprays are tonic and stimulant, and, according to the force of impingement, may have a counter irritant effect or exercise upon the tissues a decided species of massage. The Scotch or alternate hot and cold douche is decidedly stimulating and useful in spinal hyperesthesia and disturbances of cutaneous sensation, the hot Sitz bath for the relief of pelvic pain and inflammation, suppressed menstruation and dysmenorrhoea. With the sedative effect of the warm pack and tepid tub bath you are all familiar. Cold applications to the head in cases of excitement, due to congestion or inflammation of the meninges, are of the greatest benefit and may be continued during twelve out of the twenty-four hours to the advantage and increased comfort of the patient. Numerous other methods of applying hot and cold water will suggest themselves to us.

With its wide range of temperature variation, with the ability to regulate the force of its impingement upon the surface, in its potent power to influence the peripheral blood-vessels and nerve terminations, in its reflex effects upon brain, cord and viscera, in its eliminative power and in its capacity to increase assimilation and change perverted nutrition, we may expect of hydrotherapy far-reaching and permanent results when systematically applied.

BRAIN ANATOMY AND PSYCHOLOGY.¹

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The study of brain anatomy has been a most important factor in the development of psychology. Weber has said that every science passes through three stages: (1) Theological, (2) metaphysical, and (3) positive or scientific stages. It is proposed to review as briefly as possible some of the influences which have aided psychology in passing from its metaphysical into its scientific period, and to recall the fact that the impetus of the new psychology is largely due to the work of the brain anatomists. Reference will be made chiefly to the influence that the study of the structural conditions of the central nervous system has exerted in determining this development; but, as anatomy and physiology can never be entirely dissociated, attention must necessarily be directed to certain facts in mental physiology. Every student of psychology must be impressed by the force of the affirmation that "the aim of true philosophy should not be so much the discovery of new truths as the prevention of error." Unfortunately, until recently, the history of psychology has given little evidence that the workers in this field of science have appreciated this truth. Even to-day there are students of mental phenomena who ignore the source of that vital impulse which from the time of Thomas Willis has been a factor of increasing importance in the development of the "new psychology." Certain ungracious critics often refer to the present very limited knowledge of cerebral structure and function as bearing testimony to a lamentable poverty of facts. These persons forget that it was the work of years to destroy the old psychological ideals, the "stuff that dreams are made of," and they ignore the fact that this process was necessary before the psychological renaissance

¹ Read before the Society of Alumni of Bellevue Hospital, May 4, 1898.

was possible. The history of the development of the new conceptions of the structure and function of the brain is not the story of the evolution of a specialty. Anatomists, physiologists, and clinicians have all contributed their share to the common store of facts. This is an important lesson. The investigator who to-day enters upon this field of research must not be blind to the advantages of Plato's four-sided man as compared with the individual who looks at psychology only through a high-power lens, or who, on the other hand and equally as bad, is willing to call himself one of the purely "introspective school." It should be very gratifying to the members of the medical profession to recall the fact that psychology developed under the care of the anatomists, physiologists, and clinicians who founded modern scientific medicine. For centuries the spirit which characterizes the new psychology gave little evidence of any vitality. Its reawakening was due to the same causes that resulted in the birth of the new learning. Descartes, as he conducted his friend to his dissecting room and showed him the work he was doing there, said "Here is my library," and thus indicated, as it were, the path along which psychology must travel to be at least assured a place among the sciences. It is impossible to fix the exact date of the psychological renaissance. Thomas Willis undoubtedly marks a new era in the study of mental phenomena. He has been called by some the "father" of the more rational methods of investigating the structure and function of the brain. It is about the time of Willis that the psychical functions of the brain were first definitely recognized, although centuries before Alcmaeon had stated in a very indefinite way that the brain was the organ of mind. The Platonic trinity of heart, liver, and brain for centuries influenced all the conceptions regarding the structure and function of the central nervous system. This theory received its deathblow from Willis and his followers. The psychical importance of the cerebrum was recognized, and in the reaction of opinion against the Platonic theory the pendulum went too far to the other extreme, and all functions of the nervous system were said to be directly dependent upon cerebral activity. The accumulations of facts from various sources soon rendered this theory untenable. Investigations of the anatomists on anencephalic monsters, the consensus of opinion derived from

countless experiments on animals, and the observations of clinicians, all tended to demonstrate the impossibility of adhering to this belief. Willis divided the functions of the soul into "vegetative" and "rational," and in doing this he removed psychology out of the grasp of the scholastics. From the results of imperfectly conducted experiments, Willis located the centre for the vegetative activities in the cerebellum. This error should not make any one forgetful of the real good Willis did by clearly and definitely insisting upon the fact that all functions of the nervous system were not directly dependent upon the cerebrum as a centre. He also demonstrated the possibility of applying the same methods to the investigation of psychical as were used in the study of physical phenomena. The new impetus given by Willis to the study of the brain aroused great interest among the anatomists and physiologists. It is impossible even to mention the names of those who follow in his footsteps. Haller improved the methods of research. He located sensation in the nerves and movement in the muscles, and in doing this Haller opened up a new field in the study of the functions of the nervous system. The domination of every "ism" in psychology, as in other sciences, has been unfortunate, and the rule of materialism established by the Haller school was no exception to the rule. The attempt to explain all forms of psychical activity by recourse to what might be called the coarser forms of materialism was a failure, and this must be kept in mind in considering the influence of Stahl and his pupils. Haller's attempt to account for the functions of the brain by a theory of inherent irritability was unsatisfactory. It was an effort to explain the differences between voluntary and involuntary motions. The Stahlian theory was accepted by many who were unwilling to entirely relinquish the old idea of the soul or *anima* as of great psychical importance. Little by little the anatomists had shown that this "mysterious metaphysical essence" was not to be found in the glandula pinealis or in any other of the various abodes assigned to it by the schoolmen. At last Zinn formulated the belief that the soul was not located in any one part of the brain: "*Anima sedem per omne cerebrum.*" Until this time the brain had been considered the center of all the functions of the nervous system. Although it is true that from the time of Galen various investigations had

been carried on with a view to determining both the structure and function of the cord, these studies had in no way detracted from the supposed despotic sway of the cerebrum. Gradually observers realized that the spinal cord was the seat of independent centres. The medulla was also studied. Fracassati demonstrated that some of the cranial nerves had their origin here. This was the first of a series of investigations which showed the importance of the medulla as a nervous center, and gave greater emphasis to the fact that the "rational" and "vegetative" functions of the nervous system were dependent upon the activity of different parts of the brain. The structural as well as the functional differences between the higher and lower brain centers were at last recognized.

Although at first glance it appears as if Stahlism or animism was very far from being a scientific interpretation of mental phenomena, it must not be forgotten that the advocates of this belief aided considerably in the promulgation of the new doctrines. Neuberger has called attention to the fact that the Stahlian conceptions were modified by Robert Whytt in England and by Unzer in Germany, and these modified ideas were embodied in the newer and more rational interpretation of the cerebral structure and functions. Whytt said that his investigations led him to believe that the "anima" is nothing more or less than the "indefinite force" which represented the translation of sensation into motion, that this act was at times accompanied by a state of consciousness, while at others there was no conscious cerebration. Unzer recognized certain acts as conscious and others, due only to what he called "nervous forces," as unconscious. This was an important advance; but another step was necessary before the discoveries of Bell and Marshall Hall were possible. In the reaction against the teachings of Haller the idea of cerebral localization had been brought into discredit. For centuries the idea of associating certain functions with certain definite areas of the central nervous system had been looked upon as a favorite theme for the exercise of the speculative and imaginative powers of the schoolmen. In the fifth century Nemesios asserted that memory was located in the posterior, understanding in the middle, and imagination in the anterior ventricle. The work of the anatomists, aided by the observations of practicing phy-

sicians and surgeons, finally demonstrated the absurdities of these views and the absolute impossibility of establishing any system of psychology which was not founded on a knowledge of the structure of the brain. It was not unnatural that the idea of cerebral localization should have been abandoned for the time by scientific investigators. The dialectic resources of the theologians and scholastics succeeded temporarily in hiding the real element of truth beneath an enormous mass of speculation. "But truth crushed to earth will rise again," and it is to the credit of the anatomists and the surgeons that they were able to give the impulse which was needed. The investigations of François Pourfour du Petit in anatomy and those of Sabourant in surgery were of incalculable value in stimulating research in this line of study. By their efforts the theory of cerebral localization was presented in a newer and more rational form. It was demonstrated that certain functions were localized in certain definite parts of the nervous system. Gall's well-known practical application of this idea need not be mentioned. Science should not forget that Gall was really the first to direct attention to the importance of the cerebral cortex in relation to psychical phenomena. The French surgeons of the eighteenth century made many valuable contributions which confirmed the work of the anatomists. Investigations in comparative anatomy had already resulted in many valuable contributions which confirmed the work of the anatomists. Sömmering concluded that "the soul power" varied in different animals and was, to a certain extent, dependent on the size of the brain. He also said (a view in which he was supported by Ebel) that "the size of the cerebrum in comparison with the size of the medulla was to a certain extent a measure of the mental capabilities." Investigators soon began to try to determine experimentally the relations of the cerebrum to the psychical process. Rolando, the Italian anatomist, called attention to the relation of the cerebrum to the intelligence, will power, and to the perception of sensation. When at last the principle contained in the idea of cerebral localization was firmly reestablished, the way was open for the great discoveries which marked the first half of the present century. It is impossible even now to form a correct judgment regarding the far-reaching consequences of the discovery of the motor and sensory nerves by

Charles Bell and the theory of reflex action by Marshall Hall. The discovery of reflex action marks a new era in the history of psychology. It may be said that although this discovery threw no light upon the nature of mental phenomena, it was nevertheless of the greatest importance, as it removed one of the stumbling blocks which for centuries had effectively checked the development of a rational psychology. In other words, this discovery simplified the problems which remained to be solved. The discovery of the nature of the reflex phenomena was based upon the results of a long series of anatomical investigations. At the same time the more rational methods of investigation were applied to the study of mental phenomena. It is not too much to say that the proper field of investigation for the psychologist was outlined for him by the anatomist. The advances that have been made in the study of the structure and the functions of the brain since the days of Bell and Hall have been due in the main to two factors: First, the introduction of the true scientific spirit into the study of the structure and function of the brain; and second, as a result of this, the improvement of the methods and technique of investigations. In 1833 Ehrenberg called attention to the fact that the organ of mind was composed "of countless small tubes." This was the first definite description of the nerve fibres. In the year 1838 Remak described the ganglion cells, and two years after this Hannover suggested that the cells and fibres were definitely related to each other. This fact was confirmed later by Helmholtz. From this time on the workers in this field have constantly increased in numbers, and in no other science has effort found a better reward. The advances of the last fifty years are, in a general way, known to all. Each new fact regarding the structure and functions of the brain has served to show the marvelous complexity of the central nervous system. This fact has emphasized the truth that the time has not yet come when any definite system of psychology can be deduced from the facts which are now known regarding the structure and function of the brain. Flechsig's earlier investigations on the development of the fibres in the cord and brain mark a new era not only in the study of the brain anatomy, but in psychology as well. He has demonstrated anatomically that the child at birth is, as Virchow said, "a spinal thing," and, as the nerve centers in the

cord and medulla at birth are alone capable of functioning, it may be said that the newborn infant is a "vegetative" but not a "rational" being.² As the different nerve fibres in the various tracts receive their myeline sheaths, and connections are established between the higher and lower brain centers, a correlated increase of mental activity is noted as these new tracts develop. The psychologists of the future will undoubtedly make a valuable contribution to science when more systematic studies are made regarding the correlation which exists between structure and function for all periods in the life of the individual. This structural and functional correlation is emphasized by referring to certain mental diseases which are characterized by definite changes in the brain. For example, the structural conditions which exist in the cortex of the child during the second year of life have many points in common with the lesions of the cortex to be seen in cases of dementia paralytica (Fig. 1).

The sparsity of the fibres and the relatively small number of both short and long association fibres, are characteristic of the cortex in both cases. Not only is the structural similarity apparent, but there is a marked functional correspondence. The child's limited power of associating ideas, the inability to fix its attention for any considerable time, as comparable to the chain of symptoms which is often observed in cases of paresis. This structural correspondence between the infantile and pathological conditions of the cortex should be more carefully studied.

"Infant psychology," when studied in connection with the



FIG. 1.—Anterior central convolution. Dementia paralytica. Drawn from a preparation in the writer's possession.

² The researches of Apáthy, Nissl and Bethe, tend to show that the myeline sheath is only indirectly related to the conducting capacity of the nerves.

correlated structural changes of the brain, is undoubtedly one of the fundamental necessities upon which the future of psychiatry depends. As the power of associating ideas increases, and the ability to concentrate the attention as well as the capacity for prolonged physical efforts becomes more apparent, a correlated structural complexity in the higher brain centers is demonstrable. No better idea can be given of the purely theoretical basis upon which the old psychology rested than by recalling Kant's statement in reference to the psychical possibilities of the new-born infant: "The cry uttered by the child just after birth has not the intonation of fear, but that of irritation or anger"; and the philosopher adds, "No doubt, the child would like to move and feels its impotence as it might feel a change restricting its liberty." The anatomist has demonstrated the absurdity of this conception. That the cry has no psychical importance is easily demonstrable, for the structural conditions are such that psychical phenomena at birth are impossible. On the other hand, Preyer's statement that newborn infants during their first days may be pricked with fine needles deeply enough to draw blood, and yet the infant manifests no symptom of consciousness, is in accord with the deductions which have been made from the observations of the anatomist. From birth to the prime of life, as mental activity increases, the connections between the higher and lower brain centers multiply with astonishing rapidity. At the prime of life the cortex has reached its period of greatest complexity. The higher centers are more intimately connected with each other than ever before. When the individual has passed the prime of life and entered upon the period which is marked by the impairment of intellectual power, regressive, correlated structural changes exist. Many arguments may be deduced from the facts discovered by comparative anatomists which emphasize the correlation between structure and function. At birth, so far as functional activity is concerned, the brain of the infant is inferior to that of the trout. In the infant the elements of the cortex are present, but for all practical purposes they resemble the disconnected elements of an electric machine. In the trout the highest centers are incapable of functional activity because the trout's cortex consists only of epithelial cells without the presence of any nervous elements. But the

fish has a decided advantage. The intermediate brain centers are capable of functional activity, and therefore the structural conditions of the trout's brain offer a much greater possibility for the association of the various impulses than is to be found in the brain of the newborn infant. Gradually the infant rises, as it were, in the animal scale. Its olfactory tract develops cortical connections. At this stage the infant's central nervous system is comparable functionally to that of the amphibians. Then the optic tract develops cortical connections, and the infant has developed the structural changes which render a comparison with the bird possible. The development of the child's brain shows many correspondences structurally and functionally to the conditions which are seen in studying the different brains of the animal series. Comparative anatomy and comparative psychology have contributed many valuable facts to the knowledge of the structure and functions of the human brain, but it is unfortunate that a more persistent effort has not been made to bring together and assimilate the results of the investigations in ontogeny on the one hand with those of phylogeny on the other. Psychology has made few attempts to try to solve the simpler problems, and has directed much attention to the study of the functions of the brain only at a time when the structural conditions were the most complex. Much valuable information will undoubtedly be obtained by the structural and functional comparison of the human brain in the early stages of its development with the brain in the animal series to which, at a given period, it most nearly corresponds. One example is sufficient to suggest what is meant. It has been seen that the infant's brain at a certain period of development is comparable to the bird's brain, for only two of the sense areas have cortical connections—namely, those of smell and sight. The structural similarity having been noted, it would be interesting to see how far functional comparison is possible. The problem might be attacked in another way, and the observer might ask: How is the infant functionally inferior to the bird at the time when the olfactory and visual tracts have no cortical connections? The psychology of the future must be one which is based upon the knowledge of the structure of the organ of mind. It must study more carefully the correlation which exists between structure and func-

tion, and to accomplish this it must pay more attention to the solution of the simpler problems in comparative psychology. Brief mention has been made of the fibres which serve as the paths for conduction of impulses. A few words may be said about the elements which are related to the production of these impulses. It is needless to say that the mode of translation of sensory impulses into motor or physical phenomena, or *vice versa*, is not understood. Still, it may be asserted that the truth of Ribot's statement that "psychical phenomena cannot be dissociated from their physical conditions" is an excellent "working hypothesis." Although nothing is known regarding the exact method by which the various impulses are produced, it is nevertheless of great importance to study the structural relations which exist between these elements and the various paths of conduction.

In 1854 Remak demonstrated that the ganglion cells of the cord gave rise to two kinds of processes, one of which, the axis-cylinder process, "could be followed into the nerves." Remak had been induced to prosecute the line of research which resulted in this discovery by the suggestions which Rudolph Wagener had made in 1850 regarding the nature of the cells in the electrical apparatus in certain fish. In 1865 Deiters demonstrated that what Remak had shown to exist for the ganglion cells in the cord was likewise true for the nerve cells in all parts of the central nervous system. From Deiter's time until the present day the ganglion cell has been the object of numerous investigations. It is unnecessary for the present purpose to refer to many of the facts that have been brought to light regarding the structure of the ganglion cell. Golgi's investigations inaugurated a new era in brain anatomy. His work has been supplemented by the researches of Ramon y Cajal and many others. It may be said without exaggeration that no work which has been done since the days of Bell and Marshall Hall has so revolutionized the ideas and opinions held regarding the structure and function of the nervous system as has the work of Golgi and his school. No one can doubt that these conceptions regarding the structural relations have profoundly modified many views previously held regarding not only the structure but the function of the various elements in the nervous system. Since Golgi began his

researches in the early seventies, much light has been thrown upon the paths of conduction for the impulses after their origin in the cell. The anatomical relations of the different nervous centers to each other have also been studied, and inferences of practical importance have been drawn regarding the governing power of these centers. The great number of researches which have been made in later years, chiefly with the Golgi methods, seem to demonstrate that each nerve cell, with its protoplasmic branches and its axis-cylinder process, was a structural unit, and that this unit was structurally independent of any other cell, as no continuity of the elements was demonstrated. The exact method by which an impulse is transmitted from one of these structural units to another is merely a matter of conjecture. No actual contact of the processes has ever been demonstrated by the Golgi or other methods. The investigations of Wiedersheim several years ago in some of the lower organisms suggested the possibility of the contraction and expansion of these processes. This idea was accepted by many as a possible means of explaining certain psychical phenomena, such as sleep and the varying degrees of consciousness, etc. During periods of "subconscious activity" it was thought the cell processes were retracted, and during the more active degrees of consciousness they were again extended. Van Gieson has been led to believe that the fibrillary structure of the cells and processes suggested contractile powers and had something to do with the supposed movements of the processes. These theories, if true, would doubtless aid in solving many psychical problems, but unfortunately as yet the facts do not warrant this deduction. One of the chief reasons for the writer's skeptical attitude in regard to this theory is that more recent investigations apparently indicate that the present "neurone conception" of the nervous system is far from being an established truth. It is impossible, when referring to the nature of the single elements which form the various nervous centers, not to refer to the investigations of Apáthy. If the results of his researches stand the subsequent tests which should be applied to them, different conceptions regarding not only the structure but the functions of the various elements of the nervous system will be essential. Apáthy's researches have been conducted with great care, and the results are published in detail.

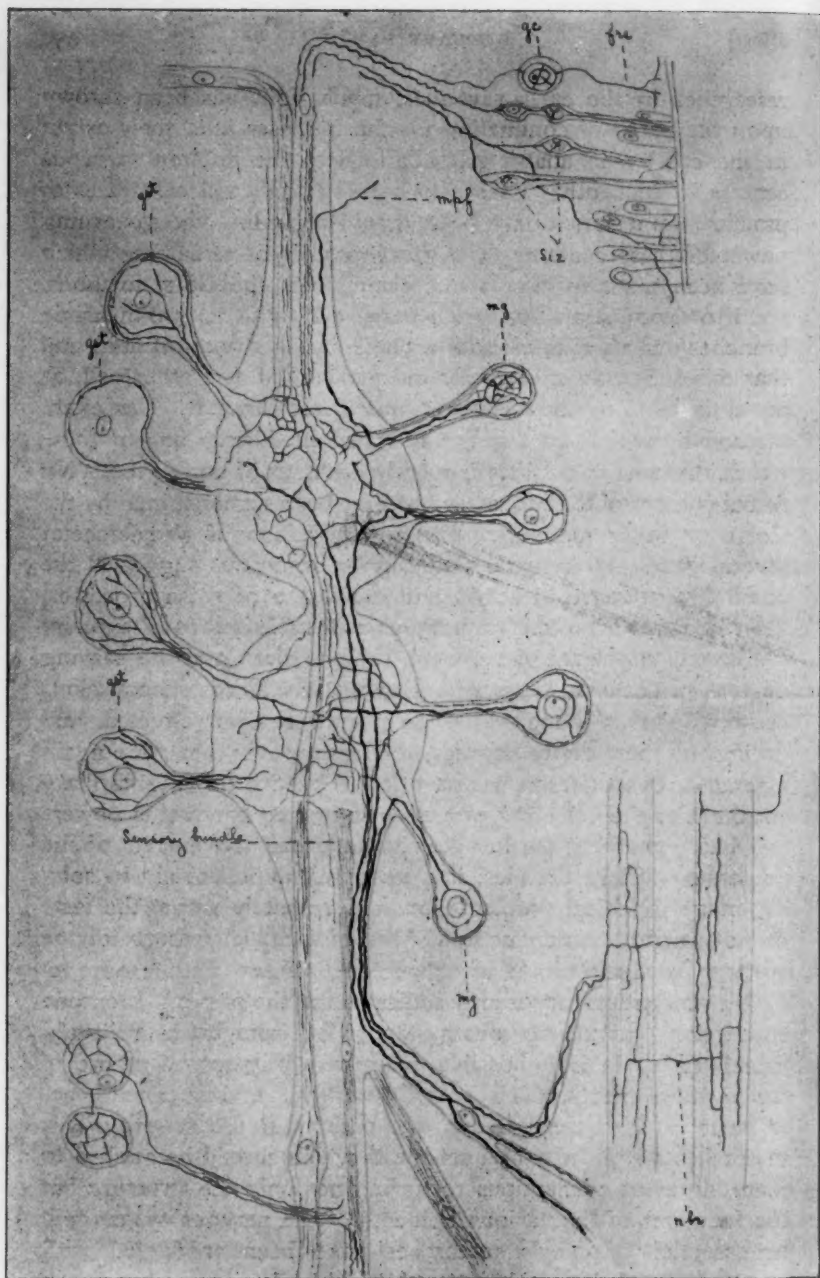


FIG. 2.—Diagrammatic representation of the course and connections of conducting tracts in transverse section of *Hirudo* somites. *mg*, motor ganglion cell; *gst*, connecting ganglion cell; *mpf*, motor primitive fibril; *fre*, "free end branch" in periphery; *gc*, ganglion cell; *nbr*, connecting bridge between muscle fibres; *siz*, sensory epithelial cell. (S. Apáthy.)

Although his investigations have been confined mostly to the invertebrates and some few of the lower orders of the vertebrates, the principle involved is very important. These studies have been so carefully made, the methods of research so plainly stated, and the results given with so little reference to purely theoretical conceptions that it is imperative that anatomists as well as the clinicians should endeavor to test the accuracy of these results. The main conclusions of Apáthy's investigations are as follows: All the elements which enter into the structure of the nervous system are said to be connected in unbroken structural continuity. Attention is called to the fact that at the very beginning, as soon as the cells are differentiated in the germ, various branching protoplasmic processes can be distinguished; but at first these processes consist only of masses of undifferentiated protoplasm. Later in the development small fibrils can be seen extending along the processes. These fibrils serve to connect the various elements. They unite not only groups of nerve cells and ganglion cells, but can often be traced into the peripheral sensory cells, so that, according to Apáthy, the nervous system is not made up of a series of disconnected units, but is structurally as well as functionally one (Fig. 2). A number of the small elementary fibrils unite to form other and larger fibrils, which Apáthy calls the primitive conducting fibrils. A primitive conducting fibril may eventually become split up into a fine network, sometimes inside of the various cells, at other times in the intervals between the cells. It is a curious fact that Apáthy's investigations are in a measure confirmatory of the theory advanced nearly fifty years ago by Gerlach; but, as Apáthy himself says, Gerlach believed in the existence of this "fine network of fibres" only from hypothetical reasons. For nearly half a century the presence of this network has never been actually demonstrated by any observer until the present series of investigations.

The student of brain anatomy should for the present absolutely refuse to construct elaborate theories upon the neurone or any other conceptions of the nervous system. It is far better to assume the spirit indicated in Pasteur's reply to a friend, who asked him what he thought about certain of Liebig's views. "I have no opinion," said the savant; "I will investigate."

One aim of the present paper has been to show the dependence

of the new psychology and the new psychiatry upon a knowledge of cerebral structure. The past shows conclusively that no rational study of mind is possible which does not have for its chief end and aim the study of the correlation which exists between cerebral structure and function. Psychology as well as psychiatry should exhibit greater patience in criticising those who

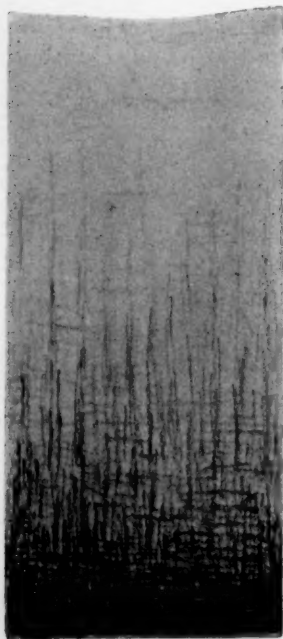


FIG. 3.—Cortex of the anterior central convolution. Child one year and a quarter. (After Kaes.)

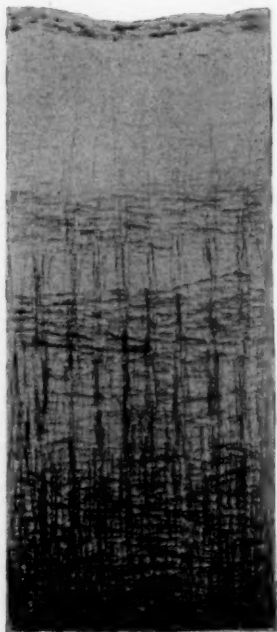


FIG. 4.—Cortex of the anterior central convolution, normal. About the thirty-sixth year. (After Kaes.)

claim for the study of brain anatomy a more general recognition than it has yet obtained.

The classification of either normal or abnormal mental processes is as yet impossible. The attempt to study mental diseases only from the clinical side has failed as signally as has the effort of the introspective psychologist to establish his system for the study of mind. The beginnings of a more rational study of both the normal and abnormal workings of the mind have at last been

established. But, unfortunately, the old spirit has not been deprived of all its vitality, and is so apparent in the writings and teachings of many psychologists and psychiatrists that the truth in the poet's exclamation—"How," she cried, "you love the metaphysics!"—may be considered as descriptive of the attitude of certain critics of the new psychology.

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SCIENTIFIC WORK IN PUBLIC INSTITUTIONS FOR THE CARE OF THE INSANE.

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The term scientific work is here used in its limited sense as applying to the clinical and laboratory methods in recent years regarded as necessary to the practice of medicine and the investigation of disease. The criticism has been made that institutions for the insane have been deficient in the scientific spirit which has pervaded hospitals for the bodily sick and injured. Such criticism has often had its value in pointing out the direction in which progress might be made, but has not always recognized the great humanity which has placed countless indigent insane patients under sanitary conditions. Statistics upon the number of indigent insane removed from improper surroundings to properly equipped hospitals during the last twenty years are wanting, but would undoubtedly show a record of philanthropy and humanity not in any way discreditable to alienist physicians or to the medical profession. The splendid results in this direction may account for the apparent neglect in others, and it may with reason be claimed that technical scientific investigation cannot well be undertaken until the housing and feeding of patients have been accomplished. It is not to be expected that the modern insane hospital of two thousand patients is to spring into existence fully developed, but rather that its best and most successful work will be that which results from a natural and orderly growth. And its development must be cautious and slow, for in this spirit of scientific enthusiasm we are already warned that the ends of science may be served at the expense of the patient, and that the first function of the institution is the recovery or the relief of the patients committed to its care. Dr. Cowles recognized this tendency in the last annual report of the McLean Hospital, in which

is drawn the distinction between the curative and custodial work of the hospital and the use of opportunities for technical observations and experiments.

The pathological reports hitherto presented by the various public hospitals are incomplete in the details regarding the history of the patient before admission and his clinical history while under observation. The first pathological laboratory instituted with proper regard for the interrelation of clinical medicine and pathology was established by Dr. Adolf Meyer at the Illinois Eastern Hospital at Kankakee. This department is described in Dr. Meyer's report for 1895 as follows: "The field of work shows in several respects a departure from that of similar departments in other institutions, inasmuch as it comprehends regular courses of instruction to the medical staff on the anatomy of the nervous system, its pathology, and also on clinical pathology, in addition to the usual task—the performance of the autopsies and clinical microscopy." Staff meetings were arranged twice each week for a systematic study of the nervous system. "The great amount of work that every physician had to do during the day, several of them having between 350 and 500 patients to look after, made it practically impossible for the class to prepare anything outside the hours when it met, and the instruction had to meet this difficulty by facilitating the study and making it nearly throughout a demonstration of what material was available from the autopsies from the private collection of the pathologist. The ordinary cramming was dispensed with in this way, and the work was not too great an additional burden for the physicians. . . .

"The courses were intended to give, besides the study of the present standing of neurology, a more harmonious working plan, a livelier interest in the purely medical questions of the work and a systematic review of what to look out for in the examination of patients. They furnished mutual instruction and formed a fair start in a movement that is not generally recognized yet by outside neurologists, but which will grow steadily and rapidly."

The report contains the records of the 192 autopsies performed. The cases are divided into groups from the clinical point of view: senile dementia, 23 cases; organic brain disease, 5 cases; epilepsy, 24 cases; chronic mania and recurrent mania, 17 cases; general paralysis, 41 cases; terminal dementia, 49 cases; acute mania, 13

cases; melancholia, 13 cases; puerperal and circular insanity, 1 each; alcoholic insanity, 2, and paranoia, 3. The cases grouped under each of these headings are considered briefly from the clinical standpoint, and then follows a concise summary of the findings at autopsy. After this consideration of the individual cases there is given a general summary of the findings for the group, and often this is enriched by an interesting review of the more recent scientific articles bearing on the subject.

Dr. Meyer left Kankakee for Worcester in the fall of 1895. The last Annual Report of the Worcester Lunatic Hospital gives a most interesting account of the reorganization of work effected by Dr. Meyer in that institution. In reference to the pathological work the following is selected (see also this JOURNAL, Vol. LIV, p. 660):

"The autopsies are made by the physicians and junior assistants. The brain is usually examined by the director of the pathological work, and the plans for the future microscopical examination and the necessary preparatory steps are outlined by him. The work is to some extent distributed among the junior assistants, according to their interest and ability.

"This general plan has given much satisfaction, and the attempt made to group the result of the year's observations has revealed a steady improvement of the material, and much evidence of a faithful elaboration of the plan adopted.

"During the winter months a course on neurology, embracing especially the anatomy of the nervous system, was given by Dr. Meyer; also occasional instruction on methods, clinical and pathological. Apart from the current work in the laboratory, the minute study of special specimens and the preparation of material to illustrate the normal histology of the nervous system were carried on.

"During the second term (January to March, 1897) a series of lectures and clinics to the students in psychology of Clark University was given, in which the medical staff of the hospital took part. During the summer school a course of ten lectures at Clark University and two clinical demonstrations at the hospital were arranged.

"This plan may safely be said to have grown, on a natural basis, out of the conditions present in the hospital, and to be the

outcome of the medical needs of the institution. Its aim is to do the best that medical science can do for the patients, and to gather from the experience, systematically and conscientiously, all that may benefit the work. Thus it becomes incidentally a plan for research work, in the same way as every physician will try to use his experience for the future,—only with the advantage that the co-operation of ten physicians, with the same methods and the same end in view, will be likely to be more fortunate in the results of research than one physician alone can expect to be."

In other institutions Massachusetts is shown to have taken a forward stand in the effort to introduce pathology into the hospitals for the insane. At the Danvers Lunatic Hospital Dr. W. L. Worcester, assistant physician and pathologist, has recently contributed several interesting papers as the result of investigations in neuro-pathology, and although the McLean Hospital is not a public institution, it would be invidious to pass over the record of this State without reference to the pathological department conducted by Dr. August Hoch.

The foundation of the Pathological Institute of the New York State Hospitals marked a new departure in this country. By legislative act passed in 1890, the entire charge of the dependent insane was assumed by the State; the various hospitals for their care were brought more uniformly than previously under the oversight of the State Commission in Lunacy, and, by subsequent act, provision was made for the establishment of a pathological institute to be located in the city of New York and to be maintained for the benefit of all the State hospitals. By these means the various hospitals are to be brought into more harmonious working union, a union rendered the closer by the quarterly publication of a State Hospitals Bulletin; intellectual life should be quickened and a bright outlook opened for scientific work.

Dr. Ira Van Gieson, an histologist of reputation and for some years an instructor at the College of Physicians and Surgeons in New York, has been appointed Director of the Institute. The individual State hospitals have at present their own pathological laboratories. The Institute just started is to work in conjunction with these, and there is hope of utilizing the large field for scientific work to the best advantage. On the staff of the Institute are at present associates in anthropology, pathology and biology, and

it is hoped to complete the staff by additional associates in other sciences, such as physiological chemistry and bacteriology.

The scientific work in the hospitals is under the general direction of the Institute staff and will be so conducted on a uniform plan so far as possible. Such work as is too time-taking or is otherwise difficult to carry out at the hospitals will be given into the hands of specialists at the Institute, whose time is given wholly or mainly to research work. It is most fortunate that the Institute will be managed in harmonious conjunction with Columbia University. The organization of the Institute is just being completed. No complete report of its work has as yet been given out. Several articles from the members of the staff have, however, appeared in the *State Hospitals Bulletin*.

Of these the most important is the address of Dr. Van Gieson delivered before the Medical and General Superintendents of the State Hospitals and the State Commission in Lunacy at one of their regular monthly meetings soon after his appointment as Director of the Institute (*State Hospitals Bulletin*, 1896, I, pp. 255, 407), in which he outlined briefly and in a vague and general way the scope of the work which the Institute should undertake.

In the January number of the *Bulletin* for 1897 (Vol. II, pp. 83-143), Dr. W. Grant Cooper, Junior Physician St. Lawrence State Hospital, has given a report of 100 autopsies performed at that institution. In the Eighth Annual Report from the same institution a similar report was given by Dr. Sawyer. As a routine, no bacteriological examinations seem to have been made, and, with one or two exceptions, the gross findings only are described. The clearness of the report is much increased by the use of diagrams indicating the seat of the lesions.

In the same number Dr. Helene Kuhlmann, Assistant Physician, Buffalo State Hospital, reports the examination of the Blood in Epilepsy. Dr. Arnold Graf, Associate in Biology at the Pathological Institute, has a paper on the "Use of Picro-formaline in Cytological Technique." In the *Bulletin*, Vol. I, 1896, p. 385, Dr. E. A. Bowerman, Junior Physician Buffalo State Hospital, reports a case of "Traumatic Epilepsy with Late Appearance of Convulsions," with the findings at autopsy. In Vol. I, 1896, p. 5, Dr. J. Nelson Teeter, Assistant Physician Utica State Hospital, reports a few cases of "Cerebral Tumor."

Dr. W. L. Babcock, Second Assistant Physician St. Lawrence State Hospital, reports in the *Medical Record* for August, 1896, "A Contribution to the Study of Acute Delirium, with Especial Reference to its Bacteriology."

There have been several other articles of a nature similar to those just mentioned reported from the New York State hospitals. The St. Lawrence Hospital has an especially good record for this sort of work.

The laboratory at the Ohio Hospital for Epileptics deserves mention. This hospital is a model of its kind in many ways, as is shown by its *Bulletin*, the first number of which appeared in January, 1898. In 1894 a "modest" pathological laboratory was opened; since then it has been considerably extended and improved. In July, 1897, Dr. A. P. Ohlmacher was appointed pathologist. Both he and the manager of the hospital, Dr. H. C. Rutter, seem determined to make it productive of work of really scientific value.

The objects of this laboratory may be briefly set forth as follows:

"1. The investigation of epilepsy and kindred neuroses, and the complications associated with and growing out of them. The hospital, containing an average of more than 600 patients, offers the finest field for investigations of this character now presented in America. The opportunities afforded for clinical-pathological and pure pathological (post-mortem) study of the special forms of disease treated here are unequaled. The laboratory has been established in order to utilize for scientific purposes this large and valuable material which must otherwise go to waste.

"2. Considering the large number of patients and the many intercurrent diseases to which they are subject on account of lowered vitality and diminished resistance, a large field for the observation of disease, similar to that found in general hospitals, is presented and will be taken advantage of in the laboratory.

"3. One of the no less important objects is to furnish laboratory facilities for correct diagnosis in clinical work by providing all necessary means for bacteriological and chemical examinations of the sputum, urine, blood, suspicious exudations from the throat and like material, thus supplying the indispensable factor of safety and methods of precision in dealing with the various intercurrent diseases met with in all communities.

"4. In a general way to examine water supply and food products; to supervise the necessary disinfection of rooms, buildings, clothing and the like, and to be of service in a great many directions in regulating the sanitary conditions connected with hospital management.

"The results of the work accomplished here will be published partly in the current medical journals in order to insure a more general circulation, and then collected in the form of reprints, which, together with other original matter, will be presented in Bulletins such as the present one, to be issued whenever sufficient material shall have been collected."

In another part of the same Bulletin Dr. Rutter makes a strong plea for the establishment of a State Pathological Institute ("The Establishment of a State Pathological Institute"; read before the Ohio State Medical Society at Cleveland, June 15, 1897).

In connection with the Ohio State hospitals, he says: "No intelligent effort has been made either to discover the source of disease, its cause and essence, or its prevention. Great advances have been made in all other directions in our public institutions."

"Good management and economy have gone hand-in-hand until it would seem that in this respect the public institutions of Ohio are all that could be hoped for, and it is not an extravagant statement to say they are not excelled anywhere in the world," and yet, "after a pretty thorough acquaintance with them, ranging over more than a quarter of a century, I am at a loss to point to any especial addition they have made to the mass of medical knowledge. The cause of this failure to make use of the almost unlimited material at their disposal for the advancement of knowledge is usually attributed to political interference. I think this is an erroneous view. Partisan politics has occasionally extended its unwholesome influence over our public institutions and choked down all efforts at good or even decent management, but the greater part of the last thirty years has been free from its malevolent control.

"A moment's reflection will show that scientific investigation should have occurred, in spite of bad politics, even if in spots," yet, "with the exception of here and there a very laudable but spasmodic effort, nothing has been done worthy of moment in the way of original research work. In fact, it has not been

possible, under existing circumstances, to carry forward work of this description. Take, for example, our largest State hospitals, with a population of 1300 patients each. Four thousand dollars per annum is the highest sum appropriated for all of medical supervision. This sum is expected to pay five physicians—one thousand two hundred dollars for the chief, seven hundred dollars each for four assistants. In addition to his medical work, the chief physician is also the chief executive officer, and is charged with the responsibility of the entire management, under a board of trustees, financial as well as medical. It will readily appear that after he conscientiously overlooks all the details of so vast an establishment he has but little time or heart for scientific investigation, even should he be possessed of the requisite knowledge to conduct it. Throughout the State during the last year, the sum of one million and forty-seven thousand dollars was appropriated by the legislature for the care and maintenance of 6786 sick people, and but twenty-one thousand two hundred dollars for their medical care, which included as well the supervising responsibility for all the expenditures of the general management of seven large establishments. Herein, I think, lies the whole difficulty. Nothing has been set apart for the investigation of diseases in the way of equipment, either of men or materials. It is true appropriation was made by the last general assembly for the Columbus State Hospital, of six hundred dollars for a pathological laboratory, which is certainly a step, though a very small one, in the proper direction. Scientific work, therefore, is left to a class of young men who are willing to exchange their time and knowledge for seven hundred dollars per annum, and, incidentally, visit and listen to the tales of woe of from three hundred to four hundred overburdened patients daily. Need one wonder, therefore, that the seven thousand patients cared for annually in Ohio have added but little to man's knowledge of disease, further than to cultivate the minds of the very few who have lived and walked with them daily? "

This graphic picture would apply to most of the States as well as to Ohio, except perhaps as regards the perfection of hospital management.

It may prove of interest, however, to give a few brief extracts indicative of the work done in States other than the four just

under review. Thus we read in the report of Dr. T. E. Oertel, Pathologist, annexed to the Annual Report to the Trustees of the Georgia Lunatic Asylum for 1896 to 1897 as follows:

"During the past year the facilities of the laboratory have been augmented by the addition of necessary apparatus, glassware and chemicals, so that it is at the present time well equipped for any work that may be required by the needs of the institution. Suitable lights have been placed in the necropsy room and night work thus made possible. The photographic rooms which I suggested in my former report have been built and recently occupied, thus furnishing a most necessary adjunct for the pictorial recording of cases of interest. As they adjoin the laboratory, their convenience and utility are much increased. For many reasons it has been deemed best to treat the subject of pathology broadly and not confine the work to the lesions of the nervous system alone. The brains of all cases have been subjected to careful inspection, and any microscopic lesions found have been recorded. Brain weight in relation to body weight and height has been noted, and a large number of cerebri have been preserved entire as a basis for a collection which, it is believed, will prove of great interest and value, and which will be subjected to future study. While many microscopic sections of nerve tissue have been made and examined, no systematic researches in this direction have been carried out, it having been thought best to expend the available time in the studies of the general organs and more especially of the kidneys. Nor has much been attempted in the way of cytological research in neurology. However pregnant of good results this field may be, however rife with allurements, it requires far too much of technical labor and expenditure of time to be more than touched upon unless one's entire energies be devoted to its pursuit.

"Past experience has shown the fact that no constant lesions can be demonstrated in the brains of those dying insane, general paresis excluded. No one will deny the value of neuro-pathology *per se*, but alone it will never prove the path that will lead us on to victory. The prosecution of general pathology, and especially that of the circulatory and glandular systems, seems a much more promising field in which to delve.

"From this conviction it has been thought best to set forth the

major facts revealed by each necropsy in as brief and compact a form as possible."

"Bacteriological examinations by culture have been limited to the testing of disinfectants claimed to possess antiseptic properties."

The report of Dr. Thomas P. Prout, Second Assistant Physician and Pathologist, contained in the general Report of the New Jersey State Hospital at Morris Plains for 1897, contains the statistical summaries of the 11 cases that came to autopsy during the year. Special attention was given by the pathologist to the examination of the blood of patients. Concerning pathological work in general, he says:

"I am convinced that the best work that can be done in a pathological laboratory of a hospital for the insane is along these lines, supplemented by a few autopsies to keep our ideas from becoming too much narrowed by a single closely-followed routine. The pathology of the future is the pathology of the living tissues, and while post-mortem findings are of much importance, if we are unacquainted with at least some of the conditions obtained during life, the knowledge of post-mortem pathological states will be of little value. In fact, pathological findings are of value only in proportion as they lead up to a knowledge of states existent in the living body and the phenomena accompanying life. Considered from this standpoint, therefore, the number of autopsies during the past year is not only enough, but more than enough for careful study. As was mentioned at the outset, however, I am fully aware of the statistical value of a large number of autopsies."

Of the work done at the Alabama Bryce Insane Hospital at Tuscaloosa, Alabama, we find the following account in the Biennial Report for 1896:

"The pathological rooms and laboratory are growing each year in prominence and importance. The excellent work done under the general direction of Dr. Bondurant has attracted much attention. A number of cabinets of valuable specimens have been collected, and pathological and post-mortem records and statistics have accumulated, through several years, of great value and interest. In the matter of diagnosis alone the laboratory is invaluable.

"Systematic work in general and neuro-pathology has been continued during the past two years, and as in the past, constitutes a most important adjunct to the medical work of the institution. Post-mortem examinations are made to the number of forty to fifty each year, and the findings recorded as a conclusion of the history of the case. In many instances, where anything of a scientifically interesting nature is shown, microscopical study of the tissues has been made. Organs and tissues showing gross disease of any instructive character are usually preserved and added to the already considerable collection of pathological specimens accumulated during the past five years.

"All of the assistant physicians and the internes are encouraged to work in the pathological laboratory. Since in course of twelve months almost all of the common pathological changes in various tissues and organs come under observation, a fairly good training in histology and pathology, as well as laboratory technique is afforded.

"In addition to strictly pathological work, much work in micro-chemical diagnosis is done—urinalysis, examinations of sputum and other excretions, examinations of blood, etc."

Of other work done in State hospitals may be mentioned:

"A Preliminary Report upon the Bacteriological Examination of the Cortex and Cerebro-spinal Fluid in Forty-seven Cases of Insanity," by Dr. Tomlinson, Superintendent of St. Peter State Hospital, St. Peter, Minn. (*AMERICAN JOURNAL OF INSANITY*, LIV, 2, 1897), and "The Pathological Supplement to the Forty-second Annual Report of the Government Hospital for the Insane, to the Secretary of the Interior, 1897," containing a "Synopsis of Post-mortem Examinations in 197 Cases of Internal Pachymeningitis."

To sum up the work in pathology which has been done in institutions for the insane in the United States, we find that the hospitals in comparatively few States are provided with pathologists; that, as a rule, the work of the pathologist is confined to routine work in the clinical pathology and in the autopsy room. What articles have been published have dealt mainly with statistics or with the elucidation of some problem previously studied by some European investigator and along the same lines previously pursued. As yet, although several of the laboratories

promise to be productive of real scientific advance, nothing denoting marked originality of thought or thoroughness of work has emanated from the laboratories of our State hospitals.

In Great Britain, as in this country, but little use has been made of the scientific advantages offered by the insane asylums. Most valuable work has, however, been done here and there. Among the more prominent contributors to the study of the pathology of the insane may be mentioned Herbert Major, Crichton Brown, Bevan Lewis (Wakefield), Savage (Bethlem Hospital), and J. B. Tuke, and Robertson (Edinburgh). There, as here, however, the desire to utilize these advantages has been steadily growing of late. Recently there has been established at Claybury a pathological laboratory for the London hospitals under the direction of Dr. Mott. At Edinburgh also a "Conjoined Laboratory of the Scottish Asylums" has been placed in the capable hands of Dr. Ford Robertson, who for some years was associated with J. B. Tuke. There is a close and happy affiliation between this new laboratory and the University of Edinburgh.

On the Continent the progress of scientific study in psychiatry has been greatly aided by the close association which has existed in many places between hospitals for the insane and university laboratories.

In Germany the universities are state institutions. The appointment to the chair of psychiatry at one of these universities usually brings with it an appointment to the directorship of a neighboring hospital for the insane. It is the custom in Germany to send most of the acute cases of insanity to hospitals situated in the university towns and under the supervision of the medical faculty of the university, while the chronic cases are most of them taken care of in larger institutions situated in the country. Abundant fresh material is thus placed continually at the disposal of those engaged in the study of the disease. Appointments to the medical faculty of a German university are usually given to men who have established a reputation for scientific work. When, in a well-known German university, the chair of medicine was given to a man whose reputation had been mainly acquired in the private practice of medicine, the number of students attending the medical course of the university fell off enormously. This shows

how much value the students there place on men who have labored to advance knowledge. In psychiatry a considerable number of appointments to professorships have been made of men whose reputations were first made in other lines. Thus Flechsig was appointed as Leipsic because of work done in the histological laboratory, and Hitzig, at Halle, because of his work in physiology. Affairs are so arranged that but a small portion of the time has to be devoted to teaching or to managing the hospital. For the former a course of lectures suffices, not always well attended because as yet psychiatry is not included among the necessary State examinations. In the hospital management the business part is taken off the directors' hands, at least most of the disagreeable part of it, and on the clinical side there are usually an abundant number of assistants. Liberal funds are provided for laboratory and clinical research, and to both advanced workers are attracted by the reputation of the director. Thus the Professor of Psychiatry in a German university has every advantage to do scientific work and to inspire it in others. The ability to do scientific work and to inspire it are the main requirements.

In France the main scientific work has been done by men connected both with the university and with the large hospitals in Paris. In Italy the men who at present have a reputation, like Bianchi at Naples, have both hospital and university positions. In Russia the prodigiously productive Bechterew is in charge of the psychiatric clinic at the Royal Military Academy of Medicine at St. Petersburg.

In this country a number of most valuable contributions to neurology have been made by men holding university positions. Thus Dr. H. J. Berkely, Clinical Professor of Psychiatry at the Johns Hopkins University, who has charge of the Baltimore City Insane Asylum at Bay View, has won an international reputation by his work with the "Golgi method" on the cortex, as well as by his studies of the peripheral nervous system. Among those others who have done notable work on the anatomy and pathology of the nervous system may be mentioned Spitzka, Strong and Allen Starr of Columbia, Donaldson of the University of Chicago, C. L. Herrick of the University of New Mexico, C. J. Herrick of Denison University, Huber of Ann Arbor, Hodge of

Clark University, Barker of the Johns Hopkins, and Spiller of the University of Pennsylvania.

Most original scientific work is done by those who enjoy the leisure for thought, the opportunity for work and the intellectual companionship which, as a rule, are to be found only in the real universities. In general, the German arrangement seems to be nearly the ideal one for scientific progress. In the United States, however, the conditions are different. And if progress in psychiatry is to be made here the scientific work must be adapted to the different conditions. In the first place every institution for the care of the insane should be provided with a pathologist whose time should be given wholly to laboratory work. As much of the time of the pathologist as can be spared from necessary routine should be given up to research work. It is hard to overestimate the advantages which accrue to the whole institution, to physicians and patients alike, as well as to the science of psychiatry itself when a man of scientific ideals and enthusiasms becomes attached to a hospital.

In the larger States, in addition to the pathological department attached to each hospital, it would be well to provide for a central laboratory. This should be placed near some centre of intellectual activity, in active association with some university if possible. In this way double inducements might be offered men of superior capacity.

This central laboratory should be the centre of the scientific activity of the State institutions. It should be a place where researches and studies beyond the capacities of the average laboratory could be conducted. It should be a training-school where men might be thoroughly trained in neuropathology and in psychology. At present there are few men in this country who have had such a training. Yet a thorough training in these two studies as well as in general pathology and in clinical medicine should be required of all appointed to the hospital staffs, whether on the clinical or pathological sides. This central laboratory might be a separate institute like that of New York or an enlargement of the laboratory of some hospital conveniently situated. Thus the laboratory at Worcester might become the centre of the scientific work of the Massachusetts institutions.

In this way, at an additional expense but slight in comparison

with the large sums already expended for the care of the insane, the various States could furnish opportunity for work which would not only vastly improve the service in the various hospitals, but would certainly raise the standard of psychiatry in this country and would give opportunity to the right man to add much that is needed to the world's knowledge.

While it may be some time before in all the States there will thus be founded a central laboratory as the nucleus for the scientific work of the State Hospitals, still the example set by New York, the cry already heard in Ohio, the excellent laboratory at Worcester, all serve to point to a bright future for psychiatry in this country.



RECENT VIEWS AS TO THE TOPICAL BASIS OF MENTAL DISORDERS.¹

BY DR. KIRCHHOFF, PRIVAT DOZENT,

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The intentional avoidance of the term "localization" in the title is not due to an extreme aversion to foreign words, but rather to the more serious fact, that after so many efforts it is still impossible to locate definitely in the brain the seat of mental disorders. But nevertheless it must ever be one of the chief and most important tasks of psychiatry to further elucidate the views as to the topical basis of mental disorders, in the sense of striving to trace to a more exact anatomical foundation the individual groups of phenomena, which are more or less constantly present in uniform types of disease. This is not a localization in the sense of focal diseases, for, in mental disorders, we must always regard the brain diseased as a whole, but still we must try to ascertain in what parts of the brain the disease signs especially prominent have their origin, which form the clinical types; the other symptoms, often masked, will be little regarded in order to simplify the examination for the determination of locality.

I now hear the practicing physician say: "That is certainly very beautiful and interesting, yet without any practical value. The study of focal diseases has at least afforded us sufficient facts with regard to localization, to permit now and then of successful surgical intervention. But these vague topical foundations of psychical disorders! They are of no value!" To which I reply: Brain surgery has certainly attained to a series of brilliant results by the study of focal symptoms, but our knowledge of the action of the normal and diseased brain is not made so certain by them, as the brain charts in which brain functions are carefully out-

¹ Translated by Dr. W. Alfred McCorn.

lined and systematically distributed, would lead us to believe. As the maps of interior Africa present other boundaries after every new exploration, so is it with our brain charts. Our knowledge of the topical distribution of function on the surface of the brain is still unsettled; it is in the process of construction. Consider, for example, how our views have changed with regard to the localization of speech. Broca's small cortical region in the left inferior frontal gyrus has been supplemented by Wernicke's region in the superior temporal gyrus; in relation to the optical centres new anatomical foundations have been discovered, so that now a speech region may be outlined on the brain chart, whose extent could scarcely without explanation be understood by an examination of the original boundaries, to say nothing of the regions beneath the cortex, and the whole right hemisphere, whose relations to speech are so manifold. Leaving out of account certain details, it may be assumed with Freud as certain that a continuous cortical region about the isle of Reil serves for the speech mechanism in the cortex; this area lies, spread out, between the central terminations of the nerves of sight and hearing, as well as the motor and sensory nerves in the cortex of the left hemisphere; to it, in all probability, there radiate association fibres from corresponding areas in the right hemisphere. Yet even here speech is not sole monarch, for the different parts of this region are united by numerous systems of association fibres, not only with one another, but also with other adjacent and remote parts of the brain. Hence any disease of the speech region must produce more or less evident mental disorder, and inversely mental disorders, which have their anatomical origin outside of the speech region, must affect the speech as soon as these symptoms of association fibres are implicated. In this sense Wernicke called every mental disease an example of transcortical aphasia, in as far as it was manifested in a perversion of speech.

This example indicates the unity of the brain in its mental action; it is an evidence of the intimate connection of mental functions. It is but a step farther to see that the whole cerebro-spinal nervous system acts as a unit, and we are forewarned from thinking that mental disorders affect only a limited portion of the brain. This is a fact of fundamental importance, which I

do not hesitate to regard as in a way a contrast with the localization results of brain surgery, but most significant for the physician's consideration and action; for besides warning the psychiatrist not to consider a diseased part of the brain alone, but also the whole nervous system and the whole man; it, in addition, teaches every physician not to forget the person when thinking of the diseased organ. Since psychiatry in each of its departments preaches this doctrine more impressively than any of the other medical branches, this subject is of especial importance for the young practicing physician. One of the principal functions of the psychiatric clinic and its great general significance, as I see it, is that it puts the personality of the patient first, yet without overlooking the especially diseased organ and system.

These somewhat indefinite boundaries of the topical bases of mental disorders may be instructive and of considerable practical use in the treatment of patients. "Certainly," I hear in reply, "that is evident, but such semi-ideal views must be obtained elsewhere, for at the university, one has enough to do to master the excessive number of individual phenomena." I will not, in reply, urge that it is just on account of the almost overwhelming multitude of details, that reference to ideal views is so important, because, say what one will, they alone are able to lead these zealous realists to results; I will not further attempt to argue that every branch, which regards as one of its chief duties the maintenance at least of the ideal interest the student has brought with him, must be of special significance—I will rather try to develop the subject from other points of view and adduce examples, which may, possibly, put in a new light the value of investigating the topical foundations of mental disorders.

One of the best known facts is the definite localization of motor functions about the Rolandic fissure in the so-called central motor region. Recent investigation shows that terminal sensory fibres also stream into this whole region, so that almost all of the sensory nerves of the opposite side of the body are here represented as well as all the motor. Besides by a series of clinical and experimental observations this condition is especially confirmed by Flechsig's recent developmental researches, whose epochal significance, for the further development of our views of psychiatry, must repeatedly occupy us. Flechsig, with Munk,

calls this region the *area of bodily sensation* or the *somaesthetic area*. Respiration and circulation find in it both motor and sensory representation; these fibres, along with the corona radiata of the central gyri, pass downwards in the posterior third of the internal capsule. In this connection it becomes clear that all emotions and passions attended by disorders of respiration and circulation must have their starting point, according to Flechsig's view, in the somaesthetic area, and that here is the point of union of the feelings with consciousness. Hence the feelings of pleasure and displeasure, which in mental disorders combined with marked emotional disturbances, are regularly accompanied by vigorous movements, must be considered as arising in the somaesthetic area; it is also to be assumed that they are inhibited from the same area. In other words the *states of depression* and *exaltation* of the old school can only occur by implication of the somaesthetic area of the brain; the other phenomena of the psychoses concerned must naturally be referred to disease of adjacent parts of the brain.

One of the most important mental symptoms, *pain*, now appears to us in an entirely new light. I must go back somewhat, for I hear it asked in astonishment, and not wholly without reason: "Pain? a mental disorder? Where is the boundary between physical and mental pain? For only the latter can really be spoken of here!" Certainly, I reply, and the boundary is where any sensation is converted into an idea in the brain, in the consciousness; for the conduction of pain in the deeper parts, in the spinal cord especially, may lead to reflex manifestations and yet often escape consciousness. It is the single intensity of a stimulus, its excessive duration or the continued accumulation of impressions trifling in themselves, which add to the sensation the idea or the feeling of displeasure; but this happens first in the brain, the organ of consciousness. We really localize the feeling of pain, as well as its opposite, pleasure, sensory enjoyment, in the periphery, where, as a rule, the stimulus first acts; for they are only apparent exceptions when in the brain itself, or in the course of the sensory nerves in its proximity, stimuli are active, which always seem peripheral to the consciousness. The pain stimulus in the dying nerves of an amputated stump arises peripherally, particularly as long as neuritic processes co-

operate; but after their cessation a cerebral pain may continue. Similarly a trigeminal neuralgia, primarily peripheral, may even continue after intracranial extirpation of the trigeminal nerve with its Gasserian ganglion. This cerebral pain may occasionally give evidence of its central origin, in that it is accompanied by special associated sensations, which retain the special character of the existent state of the brain. Thus an amputation neuralgia (which has become chronic) is mingled with peculiar feelings of position in the finger, or the itching of a previous mild eczema; these memories of earlier accessory sensations, which can arise only in the brain, are mixed with peripheral stimuli, while only a neuralgia of cerebral origin remains after cessation of the latter. A greater irritability of the brain is presumed, which may give rise to the feeling of pain from any, even weak, stimuli arriving through other channels. Related to these states is the unilateral hyperalgesia in hysteria, the cerebral origin of which like that of hemianaesthesia, often limited to a circumscribed area in one-half of the body, is not to be doubted.

We may now transfer these reflections to a state of pure psychical pain. Consider a melancholiac filled with mental pain; every peripheral sensory stimulation is carried to an over-stimulated brain and all the vital processes of the body may be such stimuli. In the brain they first acquire the character of a disagreeable feeling, but are regarded as arising peripherally, owing to eccentric projection. They then inhibit the regular functions of the body, and the *circulus vitiosus* is closed. If the physician succeed in interrupting the continuity of this circle in any way he can relieve and cure the condition. We can occasionally attain our purpose by good bodily hygiene, especially by nutrition and care of the skin, baths, etc.; a direct effect on the irritated state of the brain is to be attempted by therapeutic agents, occasionally by electrical treatment by an expert operator, but it is evident that it is very hard to reach the spot in the brain, which transforms the peripheral stimulation into painful and disagreeable sensations and corresponds to the region in which they become conscious. Nevertheless it is the province of research to seek for this spot, at least to look for the way-stations of pain in the brain, even if it is scarcely possible to demonstrate their entrance into consciousness.

I cannot here go more fully into the question whether there are special pain fibres in the periphery and in the spinal cord, but must say that the more recent views are against the assumption of specific pain conduction—very recently long pain fibres have been described in the gray columns of the spinal cord—that pains are thought to originate, for example, by summation of stimulation in the tactile, pressure or temperature fibres. Even in the spinal cord pain is then only an increased intensity of these qualities of stimuli, that is to say, it is only quantitatively, not specifically, separated from them. By some, pain is not regarded as a special quality of cutaneous sensation, but is explained as a disagreeable feeling accompanying intense cutaneous sensations; since such a disagreeable feeling can only arise in the brain, the view developed above is approached. But for our purpose the fact is of far greater significance, that in the brain there seem to be fibres especially for the conduction of pain, which are separated on the way to the cortex from those of touch, pressure and temperature. If the pain conduction in the periphery and spinal cord should be actually combined with these qualities of sensation, then a separation of the pain fibres and their function must occur somewhere in the brain. This may perhaps happen in the vicinity of the internal capsule, in that part of the brain which on account of its mode of development is called the *fore-brain ganglion*, and which consists of the external limb of the lenticular nucleus (the putamen), and the nucleus caudatus. Developmentally considered these gray masses belong to the cerebral cortex; whether they are the terminal apparatus of the system of pain fibres is all the harder to decide since other functions, *e. g.* trophic, seem also to be connected with them. I have more fully discussed this question in a recent article in the *Archiv für Psychiatrie und Nervenkrankheiten*. But the probability of a close topical relation of trophic and pain fibres in the brain is of interest for the comprehension of the disorders of nutrition so often attending emotional conditions; the possibility of lessening the emotional excitement by improvement of the former thus seems again put in a clear light.

The further question, as to how and where pain becomes conscious, is of course, not yet really settled; for we are not permitted to think of the organ of consciousness as connected with

single parts of the cortex, but must look for it in its whole extent, wherever association fibres run in it. This of course does not exclude the possibility that certain parts, by virtue of their connections, are better adapted to transmit peripheral stimuli to consciousness, or that the connections and decussations of the most diverse impressions here find as it were way-stations or nodal points. So far as the intentional direction of the attention to the processes occurring within us is concerned, a greater significance has been ascribed to the frontal lobes. Further, some developmental, as well as other anatomical, observations and experiments indicate that sensations of pain are perhaps located also in the gyrus fornicatus on the median surface of the brain; Flechsig includes this gyrus in the somaesthetic area and considers it possible that the sensual instincts are there centralized. But if the ganglion of the fore-brain is merely a way-station, the gyrus fornicatus could contain the terminus of the conduction. It remains for further investigation to determine, how the terminal stations of pain and tactile conduction are related to each other in the cortex, for it is a clinical fact that the tactile sensation of one-half of the body is unaffected by disease of the opposite hemisphere, while pain sensation may be impaired.

While we have just considered especially the terminal apparatus of the system of pain fibres, we must now glance at a special part of the pain conduction in the brain. Some few cases have shown that small foci in the internal capsule in the immediate vicinity of the optic thalamus or in the latter itself may disorder pain conduction. Since a centre for *mimetic expressive movements* is known in the thalamus, the connection of physiological pain sensation with its facial expression is probably reflexly and anatomically conditioned by this region. Then, further, in affective states (and especially in melancholia, where there are general pains and the feeling of complete misery, a profound dejection has affected the patient) conditions, which are manifested by typical mimetic expressions (see the plates in my text-book on Psychiatry), it is proper to seek the anatomical basis of these pathological conditions in the regions mentioned; they extend from the thalamus, perhaps including the fore-brain ganglion, through the corona radiata into the somaesthetic area, and thence radiate further into the general organs of thought and conscious-

ness, even over into the other hemisphere and back through the extensive systems of commissures. The suggestion merely is necessary to permit one to think that the occurrence of maniacal conditions and states, associated with feelings of exaltation, are similarly connected with the same regions of the brain; at any rate, the mimetic movements, as well as every psychomotor excitation, are here inaugurated in the immediate neighborhood of the centripetal sensory conductions. Flechsig sees in the close approximation of the terminal ramifications of sensory fibres in the cerebral cortex to the cells of origin of the motor tracts an important principle of classification for the localization of psychological disorders.

In this way, besides the somaesthetic area, he differentiates several other *sensory areas* which lie about the primary fissures and are all connected by a corona radiata with the deeper brain centres (*e. g.* the cerebral appanages or dependencies of the thalamus mentioned by von Monakow) and the spinal cord. The intervening cortical regions have no corona radiata and are, according to Flechsig, the true *association centres*. Of his sense areas those of sight and hearing are naturally of special importance for our consideration, owing to their anatomical relations to mental disorders.

The *visual area* presents, in the cortex and brain stem, relations analogous to those of the somaesthetic area. Just as in connection with the somaesthetic area a reflex action, the mimetic is united in the cortex and thalamus to the sensory system, so in association with the visual area the eye movements belong anatomically and physiologically by way of the superior colliculi of the corpora quadrigemina and the lateral geniculate bodies to those cortical regions, into which the fibres of the occipito-thalamic radiation of Gratiolet extend; these are the parts of the cortex adjacent to the calcarine fissures of the two sides. A fact of greater significance is the relation and partial similarity of the anatomical structure of the cortex and the peripheral sense organ, in this case the retina. This is more or less true of all the sense areas, but particularly of the visual; here it seems to be proven, also, that fibres from the retina grow into the brain. Hence the specific independence of this area seems certain, so that Flechsig in this respect denies the possibility of a substitu-

tion of its functions by other parts of the brain. It is further interesting that the sensory tracts between the peripheral and central terminations are the first in the foetus to be surrounded by medullary sheaths, always apparently at a time corresponding to the occurrence of function. The position of the *auditory area* in the posterior part of the superior temporal gyri is well known; several somewhat deeper transverse convolutions may be especially concerned in this function. I may also mention that the *olfactory area* is probably located in the gyrus hippocampi, and *taste* in the uncus, near the nucleus amygdalæ.

We may now ask as to how far hallucinatory psychoses or *hallucinations* in general may be anatomically located. The clinical types change so much that it is not to be expected that sharply-defined areas can be proven for them. Between and especially behind all these sense areas lies a large association centre, which, in disease of one or more of the sense areas, must to a greater or less extent be simultaneously involved. Probably a derangement in the whole development of the structures may account for these differences; but in acquired psychoses it is better to look for the reason of the different implication of the senses in the vascular supply, which varies greatly in individuals. The physiological brain formula, as it has been called, of any one must then be known before one could find the anatomical basis of the hallucinatory components of his disease. We are thus warned again against seeking too sharply-defined clinical disease types, which cannot be anatomically localized with certainty and which clinically, only by accident, are met with more than once. Synthesis, not analysis, must be the task. Only by simplification and collection of the present groups of disease will it be possible to arrange their inexhaustible psychological contents. The views developed above with regard to pain of central and peripheral origin might be employed in many ways to the differences in the origin of hallucinations; besides, the occasional unilateral occurrence of sense deceptions shows the relationship of pain and hallucination. It would take too long to go into this more fully here. But it is certain that the origin of sense deceptions can also be central; in mental disorders the central hallucinations are most common, but peripheral hallucinations along with the central very frequently occur. We here again recognize the unity of the whole nervous system.

The sane as well as the insane endeavor to find single processes and give them their special *attention*. It was some time since suggested that this function is located in the *frontal brain*, yet it must be confessed that this assumption still has insufficient foundation. However, for various reasons, it is very probable; during development it is the frontal brain above all which grows with the increasing capacity of conscious attention and selection, later it maintains the most extensive combinations, not only with all the sense areas of the cortex, but also with that very important central organ of the brain stem, the thalamus. This view of the special significance of the frontal brain is supported by the complete incapacity for every sort of apperception which is met with when the frontal lobes of the two sides have been markedly reduced in size by disease, *e. g.* in progressive paresis. According to Wundt, *active apperception* is differentiated from *passive*. Besides finer psychological differences, they are especially separated by the degree of intensity with which sensory feelings accompany the activity of the attention; in attentive listening we perceive a tension in the ears, in sharp vision in the eyes. When, with close attention, we call up memories, a peculiar sensation, like a pressure in the temples, skin and muscles of the head is noticeable. If this sensation is very intense, there become united, for example, with the sensations of tension in the eye, the corresponding visual ideas, and by this sort of physiological inhibition, a limitation to single associations may result. Passive apperception is difficultly separable from the sensory feelings of motor innervation accompanying it, but they are much rarer than in active apperception; the former occurs often with the feelings of submission, the latter as voluntarily. In this connection the special localization in the cortex of the centres for the movements of the head and eyes is of particular interest. Vivisection has shown that stimuli applied to the frontal gyri *in front* of the central gyri cause movements of the head and eyes, while the real facial muscles, the tongue and the extremities, especially their terminal members, are innervated by the central gyri. According to Flechsig's assumption, association fibres connect this area with the visual and auditory areas, so that the functions of sight, hearing and attention seem to be anatomically united in this region; active apperception may

be considered more closely related to the frontal brain than passive. The natural metabolic processes, which induce sleep and dreams in the cortex, may abolish apperception; occasionally transitional states exist, as in profound narcosis, where sometimes no pain, but merely the contact of the knife, is felt. Whether relations of anatomical position, extreme proximity or remoteness from the frontal brain here play a part is not known.

Although not clearly traceable in detail anatomically, a *trisection* of the functions of the brain's surface, which assumes that the frontal brain serves for apperception, the Rolandic region for motor and sensory functions, and the large posterior part as the organ of the special senses and perception, is of general value in localization. As a matter of fact, we have been brought even further by Flechsig's researches, but the view still retains a certain value in so far as it brings the subdivision of the brain by the large fissures, about which these functions lie, into relation to the abundant vascular supply of the cortex in these fissures and in their neighborhood.

The value of the implied distribution of the functions on the brain's surface may, I believe, be shown further by the following example. Kraepelin, an investigator averse to certain attempts toward localization, but who possesses an unusual power of successful didactic presentation of his views, arrives at a kindred train of thought in the description of the *confusion* which occurs during the development of mental disorders. He separates the delirious and hallucinatory form of confusion with marked prevalence of the sensory elements of our ideas from two other varieties; in one of these the psychomotor excitement predominates and the confusion with flight of ideas occurs, while the third form is developed with rapid increase of combinative activity of the imagination; in this the apperception is the most disturbed, and complies perfectly with Wundt's definition of mental disorders, in that the successive associations ever more predominate over the apperceptive combinations of ideas. In this clinical grouping one can again discover the trinity of functions developed above.

Now some of my colleagues will say: "Dear friend, to me, this trinity savors too much of the former philosophic classifications of the mental faculties; the old wolf is now to be smuggled

in again in new sheep's clothing!" To which I must protest, for the anatomical division of the brain's surface is not a trisection, there are all sorts of bridges connecting these large areas; they have no sharp boundaries, and the brain always functionates as a unit. Even trisection of the cranium originally indicated perhaps in the embryonic cranial vertebrae is not demonstrable in corresponding brain segments. One would succeed better in the attempt to recognize a trisection in the large vascular provinces of each hemisphere, in the areas of distribution of the anterior, middle and posterior cerebral arteries. Such a connection is actually indicated, but still only within certain broad limits of physiological variation. The early embryological stages of these vascular provinces are not yet well enough known to permit us to make out the relations to the later functions.

The vascular distribution in the cortex is also of interest in another respect; in it three superimposed arcade-like networks are demonstrable on section. It has occasionally been found in maniacal excitement that the area supplied with nutrition by the middle one of these vascular networks was especially softened; but to claim that this relation is essential and constant, is scarcely possible.

The division of the cortex into three *layers* recognizable by the naked eyes does not coincide with these vascular areas, but it has been utilized in another way for a localization of the mental functions and their disorders. Wernicke has differentiated three kinds of consciousness, which may be so grouped as to correspond to these three cortical layers, in that a *consciousness* of the body of the external world and of the personality could be regarded as superimposed. We may best waive further discussion of this unsatisfactory hypothesis, since as yet it has no special foundation, and, particularly, no anatomical basis.

Much more significant and firmly grounded is the assertion of Flechsig of a special "*organ of thought*," which he tries to demonstrate in his anatomically well definable *association* or *coagitation* (*coagito-cogito*) *centres*. By the method of demonstrating the formation of medullary sheaths in foetal and embryonic brains, he was able to prove that these mental centres receive their medullary fibres from the sense areas after the internal development of these sense areas themselves, so that innumerable

tracts from different sense centres are combined and terminate close beside each other in the cerebral cortex. Flechsig now seeks the real object of psychiatry in diseases of the association centres, which include not only the cortex, but also the association systems. He differentiates an *anterior*, *middle* and *posterior* association centre, but considers the two latter united into a large posterior centre, in his opinion the most important; in man this is by far the largest and accounts for his mental superiority in comparison to animals. Since it includes the middle insular centre containing the speech ideas adjacent to the auditory area and also inserted between the areas of sight and touch, it is by its position better adapted for a mental centre than the anterior. The control of the emotions, whose centre we know to be in the somaesthetic area, the idea of being a real person capable of action, Flechsig believes to be controlled by the anterior association centre; the ideas of the external world by the posterior. The middle centre in the insular region is in a certain sense more independent than the others, at least it has only a few connections with its opposite in the other hemisphere, while the other association centres are united by numerous commissural fibres of the corpus callosum; the peculiarity of unilateral localization of speech disorders is perhaps due in part to this. In the adult two-thirds of the brain surface serves all these higher mental functions, only one-third is for the reception of sense impressions. While formerly the seat of *intellect* was placed only in the frontal brain, Flechsig, for anatomical reasons, locates it also in the larger posterior centre.

We must greet this advance based on the study of development as really epochal, which for a long time will control the aims and methods of psychiatric and psychological investigation; Flechsig's results are the firm pillars of a structure into which psychiatry must enter. Its completion for pathology will still require much time and many efforts, but these will be rewarded. The employment of *genetic* methods will also force their way into clinical research.

It is impossible to merely allude to the many new points of view Flechsig discloses, and so I must refer to his work "*Gehirn und Seele*" (Leipzig, 1896), which is accompanied by very instructive plates. Still several conclusions may be mentioned

here, which he has briefly outlined for the localization of psychical disorders. The clinical type of *dementia paralytica* with its initial self-exaltation or self-depreciation and final indifference, he believes to be essentially due to disease of the anterior centre, although the posterior may occasionally also be affected. He then considers these disease processes independent of simultaneous meningitis. Whether he, like Kraepelin recently, presumes the first cause of the psychosis to be diseases of the ganglion cells from a sort of auto-intoxication from disorders of the bodily metabolism, or, like others, to be primary system diseases, I do not find stated. He further remarks that isolated diseases of the posterior centre run their course independent of emotions, cause stupidity, confusion, paucity of ideas, confusion of persons, finally *even dementia*. If, according to his theory, the sense deceptions in general may be due to diseases of the sense areas, he still refers the *hallucinatory psychoses* and the more complicated psychical disorders in general, *e. g.* the *delusional symptoms to combined diseases*, to the association and sense centres. Of special interest is his remark that the distinction between sensuality and the intellect made from time immemorial expresses a similar principle as the natural separation of the sense and association centres.

Flechsig finally emphasizes the individual factor in psychical diseases by showing that the brain possesses a tenacious memory for all injuries to which it has once been subjected, and that these must be reflected in the symptoms. Whether the anatomical method of investigation will succeed here as in other psychical conditions in affording the desired clearness, time will tell, but in any case it needs the full support of *psychological research*. This is especially true of *speech*; speech in the broadest sense of the word is the *acme ultimum* of mental development. Where *abstract concepts* arise from ideas, the anatomical basis ceases; we may fancy the memory of the brain's ganglion cells as extensive as we please, the number of nervous elements simultaneously active as large as we like, and, if it is allowable, assume any number of multi-celled ideas, yet out of all these we cannot obtain a concept freed from sensory impressions. The process of this detachment occurs through speech; it is the limit of the psycho-physical parallelism and our immediate knowledge of nature.

In so far as the question of the relation of speech and mind concerns the views as to the topical basis of mental disorders, another investigator, Wernicke, whose opinions differ materially from those of Flechsig, has to be mentioned along with the latter as the most important promoters of our knowledge. Perhaps another time I may be permitted to present to the reader his views in a consideration of speech and mental disorders. But I hope I have succeeded in showing the general practitioner how much psychiatry is trying to develop, and how important are the points of contact between it and practical life, even in so small a part of its province as that here discussed.



GEORGE H. STEPHENS—INSANE OR CRIMINAL?

By CHARLES McINTIRE, A. M., M. D.

Secretary of the American Academy of Medicine.

During the academic year 1897-98, a series of events offered the public press the opportunity to bring Lafayette College into unenviable notoriety. There was, first, the fire in Pardee Hall, which for the second time laid the most prominent building of the college in ruins, causing many to express the opinion that this could only have happened through gross carelessness on the part of some of the officers. Following this, there came a series of acts of petty vandalism, such as cutting the vines growing on the buildings, tarring the chapel seats, etc., which in the minds of the non-college world were thought to be pranks of students, much to the discredit of the tone of student-life at Lafayette. The student-body became so aroused at these successive acts that they organized a search for the real culprit, which led to the arrest of some of their number with others of the "town." At the preliminary examination, the evidence was not sufficient to implicate them and they were discharged.

Most of the acts of vandalism were directed against the College Chapel and were committed immediately before some important college function. Consequently the possibility of another act on the evening preceding Baccalaureate Sunday was recognized, and a watchman was stationed in the chapel as a precaution. It was a wise procedure. During the evening the chapel was opened by a key, and a man's step was heard coming up the aisle. The intruder, who was grabbed by the watchman, broke loose and escaped, not until he was struck on the breast by a small section of garden hose which the watchman used as a club. The intruder left a basket containing rotten eggs, disclosing the purpose of his visit, and, what was more to the purpose, his key, which the chief janitor recognized as the one that had been loaned to a

former instructor of the college. This clue, along with certain other facts which had caused a suspicion in the minds of the detectives, led to the arrest of George H. Stephens, sometime Associate Professor in Ethics and Logic in the college. He was brought to Easton and, under the cross-examination by the county detective, made a confession of the incendiarism and all the acts of vandalism. The characteristics of an individual of sufficient mental calibre and polite culture to be able to secure the position held by this man and afterwards to commit these acts, at the same time maintaining his position among his friends, cannot but afford an interesting study. The writer of this article is not an alienist, and will make no effort to decide whether the type is one of mental defect or moral degeneracy; whether he is to be classed among the insane or as a criminal. The effort has been to secure such an account of the man and his actions as will furnish the readers of this article the data on which to base their own conclusions.

George H. Stephens was born at Heart Lake, Susquehanna County, Pennsylvania, on May 7th, 1866. Of his ancestry, his maternal grandparents were related to each other as uncle and niece, and were all of the social type ordinarily found among the tillers of the small or moderate-sized farms in the Middle States. On his father's side his ancestry is reported to be strong and reliable; but on his mother's side it is designated as "weak"; his mother had one brother who was foolish. I cannot learn of any especial lack of care in the early education of the boy. It probably did not differ from that usually bestowed, being the result of custom or of the impulse of the parent rather than of a study of the personal characteristics of the child. I do find a number of incidents beginning early in life and scattered all along which show the disposition to retaliate for injuries real or fancied. This disposition Stephens while at Princeton acknowledged to be his "besetting sin," saying that he never forgot an injury nor could he rest content until he revenged himself. Some of these incidents will be mentioned in their proper order in this brief sketch of his career. Thus when a small boy, after being reprovved or punished by his mother, he would show his resentment by pouring hot water on her choice plants or by pulling up vegetables from the garden.

As a school-boy in the ordinary country school, one of his schoolmates does not recall anything very different in Stephens' conduct from the other boys, except his harboring resentment for a long while after any of the usual school-boy differences. Another says that he was always at the head of his class, was pleasant if he could have his own way, but desired to retaliate were his will crossed. Another informant, who knew him as a boy, speaks of this revengeful habit as a lad; this last testimony is of value, since he never had any faith in the boy nor in the sincerity of his professed conversion, which forms the next step in his career; the opinion being formed before the latter acts of his life is not prejudiced by them, however much personal gratification there may be in its confirmation.

When he was about 15 years old, he listened to an address delivered by the Rev. H. H. Jessup, D. D., of the Presbyterian Mission at Beirut, Syria. This address was given at Montrose, the birthplace of Dr. Jessup, and not far from Heart Lake. This address impressed young Stephens, and he expressed a desire to unite with the Presbyterian Church of Montrose. This act of his son displeased his father, who was a Universalist in belief, and he crossed the boy's desire and hindered him in his efforts to secure an education in various ways. He was taken under the care of the Presbyterian Church at Montrose (but never, at any time, under the care of the Board of Education of the Church at large) to be educated for the ministry.

It may be well to state at this point that this sketch is prepared from materials obtained from various sources. Some of it from statements made by Mr. Stephens to his acquaintances at Easton and some from information given by those who were acquainted with him near his home, and it was noticeable in these statements that he was very reticent of some incidents in his life, sometimes so speaking as to leave an incorrect impression. Thus the beginnings toward his education were pursued at Park College, Missouri, but of this, while apparently confidential in his autobiographic reminiscences, he said nothing, at least to some of his friends; and more, on one or two occasions when Park College was mentioned he spoke rather unfavorably about it. This tendency at concealment under the guise of perfect frankness was

noticeable in other matters. He did not succeed at Park College.¹

I have been unable to learn anything of his personal characteristics during his stay at Park College. He was a student in the Academy for the year 1886-87 and went there with the intention of working some hours each day to help him secure his education. His reason for leaving was that he was not able to stand the work and the study, although his friends at Montrose were led to believe that malarial poison undermined his health. His record as a student or as an earnest reliable workman did not come up to the expectation. In the judgment of the faculty he did not seem desirous of exerting himself physically and as he found it possible through his friends to attend school where manual labor was not a necessity, he left.

He entered Princeton in the class of 1891 ostensibly as a candidate for the Gospel ministry under the care of his Presbytery; he was graduated with special honors, being awarded the Fellowship in Mental Sciences for 1892-93.

One incident in his Princeton life will suffice. He was a member of the Board of the *Nassau Literary Magazine* and was

¹ The Park College Record for August 7th, 1898, contains the following:

"A recent card from a long-time friend, who took a special interest in the person referred to below, contains the following sentence: 'Alas, for George H. Stephens! If he had staid at Park College through the course, I do not believe he would now be in jail.' The reference is to the late professor in Lafayette College, who has recently been arrested for incendiarism and malicious destruction of property. This sad fall is kept for a moment from sinking into oblivion, only to show the grounds on which our friend based her conclusion.

Park College is emphatically a place for testing, with the result that multitudes leave who would have remained through the course at other colleges. With the testing comes the persistent offer of help in correcting the moral as well as mental aberrations and in strengthening the weak points brought to light. Mental weakness when associated with moral strength is patiently, lovingly tolerated and helped, but moral weakness, however great the brain power, which persistently refuses the help offered in character building, is not long tolerated. Had our fallen brother here accepted the discipline designed to correct the self-sufficiency and vindictiveness which finally wrecked him, he might now be filling an honored and useful position. Park College does not often, and never knowingly and intentionally, furnish the added power of education to men who are likely to be a dishonor to itself and a power for evil in the world."

accused by his fellow-editors of misappropriating some of the money. This led to a quarrel with one of his associates and to Stephens' expulsion from the board. On the following year both men were pursuing graduate studies at Princeton on fellowships. Stephens made charges of a serious nature against his classmate, urging that his fellowship be forfeited. The faculty took cognizance of these charges, appointed a committee who reported them to be entirely without foundation. Stephens was not content to let the matter rest, but offered the *Princetonian* double advertising rates to publish an attack upon his classmate.

He was possessed of some property, and about this time he was able to secure control of it, or he so represented it in some of his statements. My evidence is contradictory except as to the fact that he had some estate which he was able to use as security in borrowing money. Actually it appears to have been but a few thousand dollars, but he was not careful to correct exaggerated rumors, contrariwise, he encouraged them and permitted it to be inferred that he was possessed of a large estate, if he did not actually cause such an inference. Thus, when he first came to Easton, he entered into an agreement to pay over \$11,000 for a dwelling-house, which he afterward cancelled.

He first came in contact with Lafayette College through a letter in which he represented himself as a man of means interested in the study of philosophy and offered to found a prize at Lafayette similar to one he had already established at Princeton. The trustees accepted his offer and announced the prize but, through a similarity of the names, credited it to a Rev. George H. Stephens, a Presbyterian clergyman living in the same Presbytery, the George H. Stephens of the sketch being at that time wholly unknown to the college authorities. The prize was offered for 1892-93. Shortly after this he visited Easton and called upon President Warfield. In the course of this first conversation, he said he had attended the inauguration exercises of the president, was pleased with the appearance of the college, that he was fond of teaching and was undecided whether to go abroad and study for awhile or to teach. He intimated that financial considerations would not influence him and asked for advice. He afterwards made application for any vacancy, reserving a certain amount of time to look after his property interests; his record and recommendations were excellent.

A vacancy occurred unexpectedly, and he was engaged as instructor in Ethics and Logic with but a few hours of duty a week and without salary, which fact, however, he concealed from his home friends. His first term's work was very satisfactory but that of the second and third fell far short and was not satisfactory. The reason assigned for this was the condition of his affairs. It seems now that the little estate he had inherited was made use of by him for speculative purposes. He used it as collateral to borrow money to purchase more property, and thus to magnify the size of his inheritance. Some of this money was borrowed ostensibly for improvements. In December of the first year, near the end of the first term, he went to the president with tears in his eyes (he was quite readily moved to tears), saying he had signed a judgment note when he thought the paper was a partnership agreement and that he was placed thereby in financial straits. This transaction I believe involved his father and brother and in which Mr. Stephens did lose heavily. It was the worry that gave him the excuse for his poor work and he was urged to give up his academic work and get his affairs in shape and then return.

At the expiration of the first year he was re-engaged for a definite period of two years, this time at a salary, but his work did not prove satisfactory. He was able to do a certain amount of good work, but could not keep it up; he pleaded for another chance and a third year was given him.

In his third year he was somewhat better, but still his work was not satisfactory. During the year he entered more heartily into church and society life. He was at times inclined to self-esteem almost reaching self-conceit in his relations with his associates, which was particularly manifested in remarks about the interest of certain young ladies in himself. It should be said that Mr. Stephens denied being a party to the agreement for a definite period, but asserted that his engagement was an indefinite one and that much of his apparent unsatisfactory work was the result of conditions imposed upon him, preventing his following his own methods. As to the first part of his contention, there is documentary evidence to show his error; the rest of his statement is given to show that even before his dismissal he had a grievance against the president.

When he was informed that he would not be re-engaged after his third year, finding pleading of no avail, he began to make promises in the nature of bribes, and afterwards of threats. There was nothing he would leave undone to injure the president, or the president through the college. He brought the subject to the attention of the faculty; and made a long statement to one of his classes, at the close of which he endeavored to poll them to secure their opinion. Finally, he insisted on appearing before the board of trustees, where he read a portion of a statement he had prepared. After listening for an hour to the reading of this document, the trustees arrested its reading before apparently but one-third of the manuscript had been read.

In the following autumn (1897) he made application to become a post-graduate student in the subjects taught by the president. He visited Easton quite frequently after his connection with the college ceased. The acts associated with his name which brought him into his present notoriety are the burning of Pardee Hall on the night of December 17-18, 1897; and it is well to note that the building was fired in the department of a professor with whom Stephens had a discussion; a few days afterward the cutting of the main stalks of the ivy on the College Chapel; the cutting of the bellows of the chapel organ, probably during the Christmas vacation. In this connection it may be said that he had been accustomed to play on this instrument, which accounts for his having a key to the chapel.

On the Day of Prayer for Colleges, January 27th, 1898, the chapel hymn books and Bible were missing and were afterwards found in a cistern in the rear of South College. Professor Stephens was in Easton and present at the services on that day. The next event to be celebrated was the visit of the Princeton baseball team to Easton. On the night previous, the seats and pulpit of the chapel as well as the organ, the hymn books and Bible were treated with a coat of tar, which evidently had been poured out of some vessel with a spout. On this same night the ivy on some of the dormitories was cut. The final act was on Saturday, June 18, the night before Baccalaureate Sunday, when he entered the chapel and was interrupted in his plans as already stated. This led to his identification and arrest.

Another incident happening about this time should be men-

tioned. A barn upon his property was burned to the ground, which was heavily insured. The insurance was collected and put in the bank. A neighbor who was, at this time, endeavoring to collect a debt for money loaned, levied on this bank account. Not long after this a barn of this man was burned to the ground.

After his arrest by the detectives, he was submitted to their cork-screw methods, and finally giving way, made a statement in which he confessed committing all the acts mentioned, from the burning of Pardee Hall down to his entrance into the chapel on the evening of June 18th. The effect of this confession on the legal determination of his guilt or innocence does not concern us. It is sufficient to know that he made such a confession justifying himself for his actions, because the president was his enemy, as shown by not giving him a fair show while he was teaching; in disgracing him by not continuing his services in the college, and by following him, now that he was dismissed, with positive efforts to prevent his securing another appointment. It was only near the close of his confession that he seemed to express any regret, or to be conscious that he had done anything but a perfectly justifiable act. In this confession he testified that he had brooded over the wrong done to him, and had thought much of the agent who had so injured him. He had been interested in the newspaper accounts of the struggle of the Cubans for independence, and in his brooding he traced a parallel between his own case and the suffering Cubans. They were afflicted by a Weyler, he by a Warfield. He had seen a box of matches in a hotel, and the use he could make of them had been suggested to him until his continued "brooding" led him to light the fire in Pardee Hall. He had read about the barb-wire trocha that was cut; he, too, had some cutting to do and the ivy suffered. Each overt act had been the result of an impulse caused by his continual brooding over his ill-treatment.

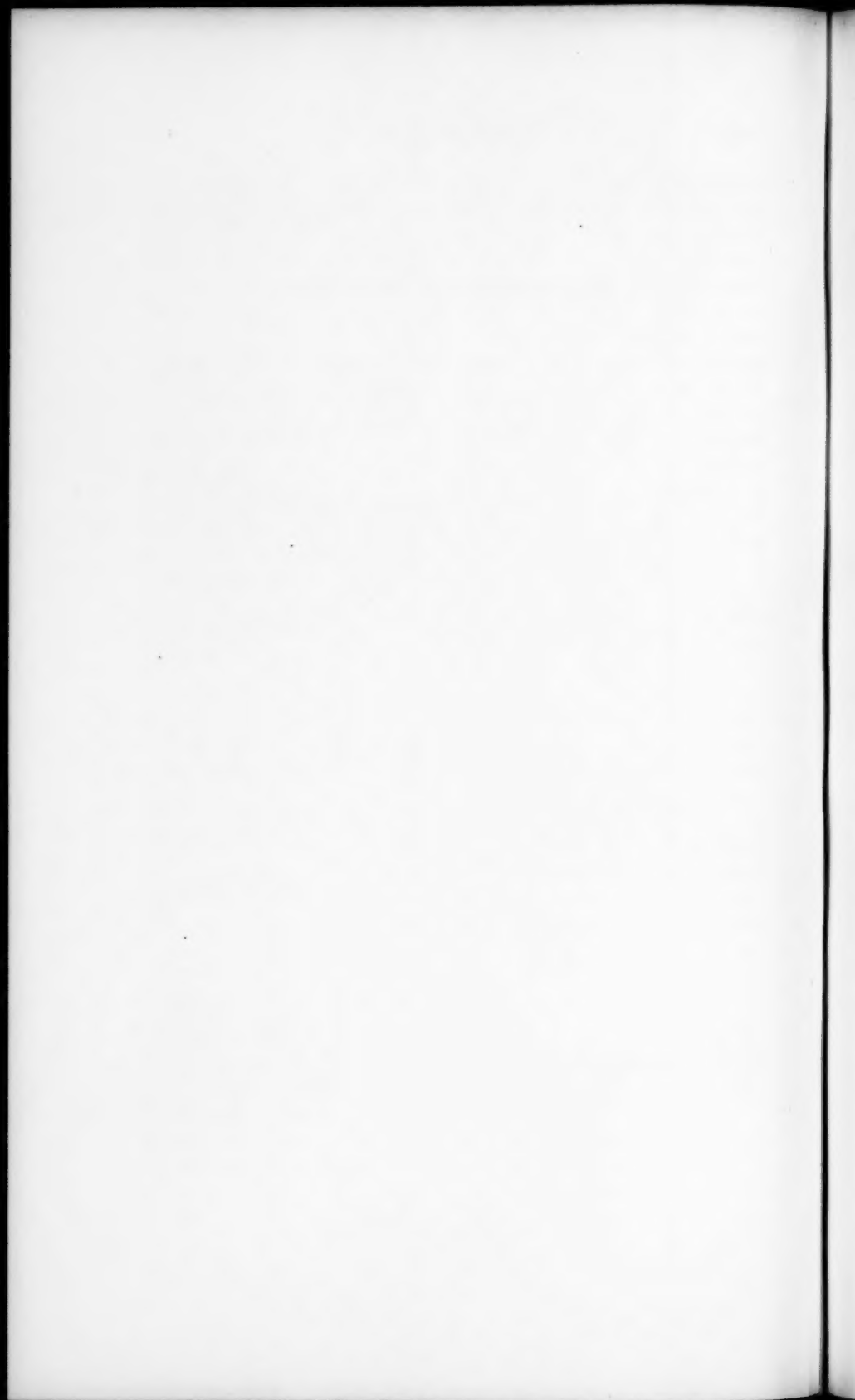
He was remanded for trial and being unable to secure bail was imprisoned awaiting that event. The law's delay has been illustrated in two postponements, the last until the February, 1899, term of court, so the result of the judicial injury cannot be incorporated in this paper.

I have been able to gather a number of additional incidents, but

they furnish nothing differing from those mentioned. After the fire, he spoke calmly about it to several of his acquaintances in Easton, expressing regret that the building where he taught should be destroyed. Some of his little financial dealings show signs of scheming and sharp dealing that may indicate a lack of moral integrity, but to gather them up seems almost to be sweeping gossip in a heap.

Such, then, are some of the incidents relating to this man who has achieved at least a wide-spread notoriety, however ephemeral, so that in the writer's experience during the year, when it was known that he lived in Easton, whether the fact was announced at Denver or at Eastport, Maine, the comment invariably was: "That is the place where the professor set fire to a college."

Easton, Pa., January, 1899.



Proceedings of Societies

MINUTES OF THE SIXTH MEETING OF THE ASSOCIATION OF ASSISTANT PHYSICIANS OF HOSPITALS FOR THE INSANE.

The sixth meeting of the Association of Assistant Physicians of Hospitals for the Insane was held at the Illinois Eastern Hospital, Kankakee, Ill., September 28 and 29, 1898. The following members were present: Drs. A. S. Rowley and G. L. Noyes, of Traverse City, Mich.; Dr. Herman Ostrander, of Kalamazoo, Mich.; Dr. Irwin H. Neff, of Pontiac, Mich.; Dr. H. R. Niles, of Flint, Mich.; Drs. Wm. G. Stearns, Emily F. Wells, V. Podstata, B. C. Howell, W. O. Krohn, E. F. Enos, O. C. Wilhite, M. O. King, T. M. Foster, and A. W. Hawley, of Kankakee, Ill.; E. L. Emrich, of Cleveland, Ohio; E. L. Crouch, of Jacksonville, Ill.; F. H. Jenks, of Elgin, Ill.; C. R. Scheffer, of Dunning, Ill.; John R. Barnett, of Lincoln, Ill.; Samuel Dodds, of Anna, Ill.; J. W. Walker, of Chicago, Ill.

The following guests were present during one or more of the sessions: Drs. H. H. Rogers, Benjamin J. Uran, Charles True, Clare Sims, V. Palmer, G. B. Boyd and Thomas Lockie.

During the intervals between the sessions informal visits and inspections were made in various parts of the hospital.

FIRST SESSION.

September 28, 4.30 P. M.—The president and vice-president being absent, Dr. E. F. Enos, chief of staff of the Illinois Eastern Hospital, presided. Drs. Rowley, Ostrander and Krohn were appointed as members of the executive committee *pro tem*.

The minutes of the fifth meeting of the Association, held at the Wisconsin State Asylum, Mendota, Wis., September 10 and 11, 1897, were adopted as printed in the AMERICAN JOURNAL OF INSANITY in January, 1898.

The secretary then made the following report, which was accepted:

SECRETARY'S REPORT.

It may not be amiss at this time to give a short review of the history and aims of the Association and the work it has accomplished. This is all the more pertinent to the occasion, as in this hospital, May 2, 1895, the Association of Assistant Physicians of Hospitals for the Insane was first organized.

Dr. Adolf Meyer, in his preliminary report, predicted the benefits which would probably result from such an organization. It seems unnecessary to say that in the main his anticipations have been realized, as can be verified by members who have attended the meetings. The charter members represented the hospitals for the insane in the States of Illinois, Iowa and Michigan. It seemed desirable for a beginning to restrict the membership to Illinois and the neighboring States. At the second meeting of the Association, October 24, 1895, the Association was made a national organization. A general invitation elicited a hearty response. The Association has received praise and many words of commendation, but these alone are not material. The success of the Association is due to the indefatigable work of its members. Without this co-operation there could not have been any measure of success.

That we have labored under many disadvantages and that we yet have many difficulties to overcome, is apparent. How shall we meet them? At each meeting the attendance has not been as representative as desirable, and although efforts have been made to overcome this difficulty, they have been unavailing. Another factor is the reluctance of some asylum physicians to become active members. If they join the Association, they play a passive part. The alleged and uniform reason given by these, that they "do not expect to remain in asylum work for any length of time," seems to me to be insufficient, whether it be from a political or personal motive. The elevation of the assistant physician can only be accomplished by co-education, and, as has been emphasized in former reports, the benefits attendant on attendance on these meetings reflects not only on the physician's work, but is directly a benefit to the institution which he represents.

To maintain the standard and to ensure continued success which the Association of Assistant Physicians has gained, it is essential that every member of the Association should put forth every effort, and he should feel that he owes his allegiance to the Association. It is only by complete co-operation that we can attain permanent success. With a membership roll of 70 active members these results are certainly attainable.

The following is a *resumé* of the meetings and the work we have done. Five meetings have been held, at the following institutions: Illinois Eastern Hospital for the Insane, May 2 and 3, 1895; Michigan Asylum for the Insane, October 24 and 25, 1895; Iowa Hospital for the Insane, May 7 and 8, 1896; Eastern Michigan Asylum, December 3 and 4, 1896; Wisconsin State Hospital for the Insane, September 16 and 17, 1897.

Papers have been presented in the following order: "Demonstrations of Tissues Hardened in Formalin," by Dr. Adolf Meyer; "Report of 36 Cases of Epilepsy Treated by Flechsig's Treatment," by Dr. George Boody; "Review of Physical Signs of Degeneration," by Dr. Adolf Meyer; "Deformities of the Jaws," by Dr. George Boody; "Demonstration of Abnormal Palates," Dr. Herman Ostrander; "Some Cases Illustrating Physical Signs of Degeneration," Dr. Irwin H. Neff; "The Bodily Weight in Melancholia," Dr. A. L. Warner; "A Case of Rupture of Kidney," Dr. George Boody; "The Use of Electricity in the Treatment of the Insane," Dr. Irwin H. Neff; "Two Cases of Degenerative Insanity," Dr. Jason Morse; "Sulfonal Poisoning," Dr. Adolf Meyer; "The Importance of Improving Nutrition in the Treatment of the Insane," Dr. A. L. Warner; "Several Cases of Typhoid Fever Followed by Convalescence and by a Marked Improvement in Mental Condition," Dr. A. L. Warner; "Inunctions of Leaf Lard in Cases of Emaciation," Dr. George Boody; "Degenerate Jaw," Dr. George Boody; "Degeneration in Criminals, as Shown by the Bertillon System, Measurements and Figures," with demonstrations, by Dr. W. A. McCorn; "Method of Examination of Insane Patients on Admission," Dr. Wm. G. Stearns; "An Account of Autopsy with Abnormal Kidney," Dr. Jason Morse; "Consideration of 368 Cases of Paretic Dementia," Dr. I. H. Neff; "Clinical Studies of 100 Cases of General Paralysis of the Insane," Dr. R. M. Phelps; "Five Cases of Hysterectomy in the Insane," Dr. Isabell M. Davenport; "Static Electricity in the Treatment of Nervous and Mental Diseases," Dr. H. R. Niles; "Delirium Grave," Dr. A. S. Rowley; "Bone Marrow in Anæmia," Dr. Wm. O. Mann; "A Classification and Table for Practical Use," Dr. R. M. Phelps; "Pubescent and Adolescent Insanity," Dr. Jason Morse; "Paranoia," Dr. H. J. Gahagan; "Some Modern Agents in the Treatment of Insanity," Dr. Irwin H. Neff; "Imbecility an Element in Insanity," Dr. R. M. Phelps; "Pure Cocainism," by Dr. George Boody; "The Early Diagnosis of Paretic Dementia," by Dr. J. Podstata; "The Relation of Laboratory Psychology to the Study of Insanity," Dr. W. A. Krohn; "A Report of a Case of Tubercles of Brain, with Some Remarks on Psychical Changes Occasioned by Brain Neoplasm," Dr. A. F. Lemke; "Report of the Ophthalmologist at Willard State Hospital for One Year," Dr. S. F. Mellen; "Staff Meetings in Hospitals for the Insane," Dr. I. H. Neff; "Classification Based on Clinical Lines, Combined with a Tabulation of Clinical Data," Dr. R. M. Phelps; "The Advantages of Cottages in the Treatment of Certain Cases," Dr. Samuel Dodds; "Report of an Autopsy, with Exhibition of Photographs," Dr. George Boody; "A Syphilitic Case, with Post-Mortem," Dr. Irwin H. Neff.

A glance at the titles of these papers will show that they cover a wide range of subjects relating to the work of the asylum physician. I am sure every one having heard the papers will agree with me that he has carried away with him many valuable suggestions which have proved a stimulus to his work and of value to his hospital. The attending member obtains valuable knowledge, not alone from the papers and discus-

sions; but his inspection of the institution, its management and routine, and the association with his co-workers, have an appreciable effect.

The report of the treasurer was read and accepted.

Dr. Neff, chairman of the committee on "a plan under which to do systematic work," prepared by Dr. R. M. Phelps, and adopted at the meeting of the Association December 4, 1896, requested more time for consideration.

A general discussion, relative to increased attendance at meetings and a method of securing papers, followed. It was thought that if a greater number of members could be present at the meetings, the assignment of papers could be more systematically arranged.

Dr. Ostrander made the following motion: "That the secretary be instructed to write to the superintendents of each hospital for the insane represented in the membership roll, asking that a delegate be sent to each meeting, and suggesting that his expenses be defrayed by the institution that he represents." Carried. Adjourned.

SECOND SESSION.

September 28, 7.30 P. M.—Dr. E. L. Emrich, in behalf of the superintendent of the Cleveland State Hospital for the Insane, extended an invitation to the Association to hold the next meeting at that hospital. Dr. Herman Ostrander, of the Michigan Asylum for the Insane, Kalamazoo, Mich., in behalf of the superintendent, extended an invitation to hold the next meeting at that institution. Dr. E. L. Crouch, of the Illinois Central Hospital, in behalf of the superintendent, extended an invitation to hold the next meeting of the Association at that hospital.

The executive committee recommended the following persons for election to active membership: A. S. Hamilton, Iowa State Hospital, Independence, Iowa; E. L. Emrich and T. McNamara, Cleveland State Asylum, Cleveland, Ohio; Dr. Theophile Klingmann, Pathologist of the Michigan State Asylums, Ann Arbor, Mich.; W. G. Hutchinson, Eastern Michigan Asylum, Pontiac, Mich.; Sidney E. Morgan, South Dakota Hospital for the Insane, Yankton, S. D.; D. N. Calder, Brattleboro Retreat, Brattleboro, Vt.; H. Walter Mitchell, State Asylum for Insane Criminals, Bridgewater, Mass.; E. L. Crouch, Illinois Central Hospital,

Jacksonville, Ill.; F. H. Jenks, Illinois Northern Hospital, Elgin, Ill.; C. R. Scheffer, Asylum, Dunning, Ill.; John R. Barnett, Illinois Asylum for Feeble-minded Children, Lincoln, Ill.; Fonda Nadeau, Northern Michigan Asylum, Traverse City, Mich.; E. F. Enos, M. O. King, O. C. Wilhite, A. W. Hawley and A. A. Lowenthal, Illinois Eastern Hospital, Kankakee, Ill. They were thereupon elected.

The following officers were elected for the ensuing year: President, Dr. E. L. Emrich, Cleveland State Hospital, Cleveland Ohio; vice-president, Prof. W. O. Krohn, Illinois Eastern Hospital, Kankakee, Ill.; secretary and treasurer, Dr. Irwin H. Neff, Eastern Michigan Asylum, Pontiac, Mich.; members of executive committee (in addition to the three mentioned above), Dr. Samuel Dodds, Illinois Southern Hospital, Anna, Ill., and Dr. W. A. Searl, Cuyahoga Falls, Ohio.

Dr. V. Podstata read a paper on "Opium and Melancholia." Discussion: Drs. Stearns, Walker and Krohn.

Dr. Niles read a paper on "Hydrotherapy in the Treatment of Mental Diseases." Discussion: Drs. Krohn, Podstata, Walker and Neff.

Adjournment 9.15 P. M., to attend a reception given the Association by Dr. Wm. G. Stearns, superintendent of the hospital.

THIRD SESSION.

September 29, 9.45 A. M.—The executive committee announced the Cleveland State Hospital as the place of the next meeting, to be held during the latter part of September, 1899.

Dr. Neff read the following paper, "The Tuberculin Test," with exhibition of charts. Discussion: Drs. Krohn and Wilhite.

Dr. Thomas Lockie, dentist at the Illinois Eastern Hospital, read a paper on the "Care of the Teeth in the Insane." Discussion: Dr. Ostrander.

The Association then adjourned to the clinical laboratories of the institution, and after visiting the anthropometrical, neurological, microchemical, eye and ear, and dental rooms, assembled in the psychological laboratory. Prof. Krohn, the Psychologist of the Illinois Eastern Hospital, demonstrated the method of examining patients on admission, with reference to their mental condition, by means of the latest and most approved methods

of laboratory psychology. Instruments for testing each of the twelve senses with reference to keenness, localization and integrity, were shown; instruments of precision for measuring the time rate of the neurological and mental process, as well as devices for measuring fatigue, voluntary motorability, and location-reactionability. The advantage of such work in diagnosis was emphasized and some very practical results were set forth.

The Association then adjourned to the pathological laboratories, where Dr. O. C. Wilhite, the Pathologist of the Hospital, showed the manner and method of keeping hospital pathological records. He stated the number of necropsies as 110 during the last year, with a relatively large number of general paretics, about 40 per cent. of the year's post-mortems being upon cases of parietic dementia. Technique was also spoken of, especially paraffine infiltration, this being used almost exclusively. The staining of sections on slides after Ohlmacher's egg-albumen method, was demonstrated. The Thionin and Nissl stain received especial attention. In the comparison of the two, the former was given the preference, as it was more readily controlled and seemed to give quite as good results as the latter method. The bacteriological work of the hospital was referred to and the results of an examination of the cerebro-spinal fluid and cortex were shown.

The remaining portion of the time was spent in looking over microscopical preparation.

FOURTH SESSION.

September 29, 1.30 P. M.—Dr. A. W. Hawley read the following paper, "Certain Factors in Epilepsy." Discussion: Drs. Ostrander and Crouch.

A paper by Dr. W. O. Mann, entitled "Results of Orificial Surgery in the Treatment of the Insane," was read by Dr. H. R. Niles.

Dr. Irwin H. Neff read a paper entitled "Factors in the Prognosis and Duration of the Acute Insanities." Discussion: Drs. Ostrander, Podstata, Jenks and Emrich.

Upon motion of Dr. Herman Ostrander, the thanks of the Association were extended to the superintendent and staff of the Illinois Eastern Hospital.

Adjourned.

IRWIN H. NEFF, Secretary.

MEDICO-PSYCHOLOGICAL SOCIETY OF QUEBEC.

Meeting held at the Protestant Hospital for the Insane, Verdun, P. Q., October 15, 1898, Mr. Vallee, President.

The minutes of the previous meeting were read and adopted.

ELECTION OF NEW MEMBERS.—Messrs. Henry M. Hurd, Baltimore, U. S., and Ritti, Charenton, France. A. R. Urquhart, Perth, Scotland, and Villers, Brussels, Belgium, were elected *honorary* members of the society.

ADOPTION OF THE RULES FOR THE SOCIETY.—The rules of the society, prepared by Messrs. Villeneuve and Chagnon, were read and adopted.

COMMUNICATIONS.—MEDICAL CERTIFICATE AND COMMITMENT.

MR. VILLENEUVE.—At the last meeting of the society I called the attention of its members to the necessity of modifying the actual form of the medical certificate of commitment. Since then I have continued my studies and researches and have come to the conclusion that in modifying the formula "B" of our certificate, in the sense of the certificate as required in England, and our formula "C," in the sense of the annex of the certificate in use in the State of New York, but, adapting them to the special wants of our province, we would be as near perfection as possible.

In France the great majority of commitments are made under the direction of the administrative authority. In England, in the State of New York, and in many other countries, the commitment is ordered by the courts of justice of different jurisdictions; in the Province of Quebec it is the medical superintendent of an asylum who orders the commitment of the insane to the asylum under his charge and for the district under his control. The insane detained in the goals are the only exceptions to this rule; as for others, the law cannot interfere unless they are adjudged scandalous or dangerous lunatics. The number of the insane transferred from the prisons by order of the lieutenant-governor, those adjudged scandalous or dangerous and committed on warrants by justices of the peace or police magistrates, do not reach the tenth part of those admitted, so that ninety per cent. at least of the admissions are ordered by the medical superintendent.

The medical superintendent is then placed in the position of a judge, since he is called upon to exercise a function ordinarily devolving on the judges, and to decide upon the liberty of individuals with this difference, that he decides, not after the examination of the individual in question and after hearing the parties, but after the examination of the documents that are furnished him.

Undoubtedly, the most important of these papers is the medical certificate. This certificate should then afford proof: 1. That the individual is insane. This cannot be better shown than by a detailed statement of the symptoms of lunacy directly observed by the doctor. 2. That there was necessity of placing the person in an asylum, either in view of treatment or protection or public safety. These different points are proved by the form of mental alienation, of which the medical certificate should give a sufficient idea by the study of the circumstances in which the patient is found and by the deeds and actions which are proven; the depositions and the names of the eye-witnesses are also indispensable. 3. That the physical state of the patient permits transferring him to an asylum, with hopes for favorable results from a special treatment; also that there is ground to believe that the patient might become dangerous or scandalous.

As I have shown at our last reunion, these certificates are, in most cases, manifestly insufficient. Many of them do not make any mention of symptoms of lunacy directly observed by the doctor, do not cite the facts observed by other persons in other than an imperfect manner or exaggerate them without giving the names of eye-witnesses, so that, later on, it is impossible to ascertain the exact facts; finally, they do not sufficiently establish what is the physical condition of the sick person, so that very often those that are actually dying are brought to the asylum when nothing in the medical certificate would show that such was the case.

To prevent these inconveniences, the giving of a certificate ought to compel the doctor granting it, when he declares that the person is insane and should be incarcerated in an asylum, to state separately: 1, The facts observed by himself at the time of examination; 2, the facts which were told him by others, giving at the same time the names and addresses of the persons.

This certificate should also contain a precise declaration of the physical state of the patient.

The English certificate contains all these desiderata and other differences of detail which it would be useful to incorporate in our certificate, as, for example, the precise date of the examination and the exact name of the place where it was held and with the postal address, and the place of residence of the doctor giving the certificate.

The formula "C" is similar to the annex of our medical certificate, contains not less than 31 questions, and should be completely changed, because it no longer serves the purpose for which it was originally intended.

I propose, as a model for this change, the annex of the medical certificate of New York State, which, in 10 questions, clear and precise, embraces all the supplementary information that could be desired.

I am of opinion that the society should name a committee to study this question, so that at the next meeting they would be prepared to submit a form of the medical certificate to the members.

The society adopted the motion of Mr. Villeneuve and named a special committee composed of Messrs. Villeneuve and Anglin to study the question. They will draw up a new series of certificates necessary to the committal of lunatics and submit them to the society at its next meeting.

INFLUENCE OF TRAUMATISM ON THE MENTAL STATE.

MR. CHAGNON.—Incidental maladies, and traumatism befalling lunatics during the course of their mental affections, are sometimes of good omen to the alienist doctor, inasmuch as they help to a speedy cure which otherwise would have been slow to come or perhaps would not have happened.

I have had under observation in my service at St. Jean de Dieu Asylum, a case which terminated in a cure after two years duration, thanks to a traumatism.

I think it will be interesting to lay before you the facts of the case:

Summary.—Hugh, James K., aged 25 years, state of stupor, penetrating wound of the abdomen; cured. Hugh, James K., was

admitted to St. Jean de Dieu Asylum, Long Point, on October 19, 1896—25 years of age and the son of a farmer. There was never any hereditary taint of insanity in his family, and he himself did not show any physical stigma of degeneracy.

He was a conductor on the street railway cars for several days when a slight accident happened to the car in his charge. Though the accident was of little importance, it was nevertheless sufficient to trouble his mental equilibrium. This accident happened about 15 days before he came to the asylum.

On his admission he showed a slight trace of maniacal excitement, which shortly afterwards gave place to stupor, during which it was sometimes necessary to have recourse to forced means of nutrition. This stupor did not, however, continue all the time; it was broken by maniacal attacks more or less intense. Some ambitious ideas showed themselves at times, and hallucinations of hearing rendered him impulsive; he gradually fell into *gatisme*.

On the morning of June 13, 1898, he made an attempt to commit suicide. He drove a knife into the epigastric region. The course of the wound was from right to left, following the rectus muscle for the space of about half an inch, and buried itself in the linea alba by a slight oblique opening measuring one inch.

Doctor Brennan was immediately called upon to perform a laparotomy. He found no intestinal nor stomachal perforation. A superficial layer of the omentum only was cut off, showing a vein much engorged and a slight hemorrhage of a small vein at the same place. A stitch with catgut was taken and the abdomen was closed.

Whilst they were making the deep sutures the patient showed signs of asphyxia, stoppage of respiration and imminent danger of death. Rhythmic tractions of the tongue after Laborede's method was resorted to and the patient came to himself. The result of the operation was excellent; no rising of temperature; no suppuration. The last sutures were removed the 28th of the month.

This attempt at suicide, which was the first, was due to the hallucinations of hearing "*They have bored me too long*," he said to me, "*and I prefer to die*."

During the first week which followed the surgical intervention, he fed himself very imperfectly, in spite of our entreaties, and wished to die.

We saw that in a short time we would be obliged to have recourse to forced feeding, when all of a sudden he decided to take everything which was offered him.

From this moment his convalescence progressed rapidly, and on the 31st of August he was able to return to his family.

TWO CASES OF PSYCHICAL TROUBLES AFTER OPERATIONS.

MR. CHAGNON.—I have had the advantage to observe two cases of psychical troubles after the performance of operations, one following the amputation of the breast and the other after the amputation of a leg. The facts of my observations are as follows:

Summary.—Obs. 1. Madame D., 34 years of age; sarcoma of the breast; operation; acute mania.

Madame D. was admitted to the Notre Dame Hospital, Monttrial, on March 26, 1891. She came to undergo an operation for sarcoma of the breast. The operation was successfully performed on the morning of March 28. The following night she had little sleep. Slight agitation during the day of the 29th, absolute insomnia during the night of the 29th, and at length crisis of acute mania on the 30th. This state continued; she became so agitated and so noisy that it was decided to send her to the asylum on urgency. She was admitted to St. Jean de Dieu on the 3rd of April, and died there on the 7th of April from acute delirium. We learned from her husband, what she herself had not declared, that shortly after her marriage, which took place three years before, she showed signs of maniacal excitement for a short time, and that one of her sisters was out of her mind. It was impossible to have any information about her family history.

Summary.—Obs. No. 2. Mrs. F., 54 years of age, fungous arthritis of the tibio-tarsel articulation, amputation of the leg, circular insanity.

Mrs. F. was admitted to Notre Dame Hospital on June 5, 1894, to be treated for a fungous arthritis of the tibio-tarsel articulation of about five years' standing.

Hereditary Antecedents.—Her father died at 77 years of age from senile debility. Her mother died at the age of 68 years from the "grippe." She had seven brothers, of whom four died

young; the three living brothers are in good health. Three sisters are also in good health.

Personal Antecedents.—Mrs. F. had eleven children and one miscarriage. She never showed any nervous trouble. About 18 years ago she noticed that a tumor was growing on the dorsal surface of the foot. Bothered with its growing volume, she had it removed six years later. The wound did not heal; a necrosis of the bone followed; a fragment of the necrosed bone was taken away; recovery during 6 or 7 years, and then reappearance of the disease; she was then admitted to the hospital; at this period the patient was excessively debilitated, and it was pointed out to her that an operation was the only means of saving her life.

Amputation of the leg at the inferior third. Secondary hemorrhage very abundant. She left the hospital on the third of July.

On leaving the hospital Mrs. F. was very anæmic. Two or three months afterwards she began to show symptoms of melancholia—"she saw everything in black; everything appeared to her as big as mountains; she was to fall in poverty." This state of melancholia would begin towards evening and continue until the following evening, and was succeeded by a period of mental *surexcitation* lasting the same length of time.

The melancholico-maniacal fits succeeded each other regularly from the time they first began and were not followed by lucid intervals.

Although actually less marked, they were yet perfectly distinct. Their beginning had been altogether insidious.

In the first case there was an anterior attack of insanity, collateral, and perhaps direct heredity inasmuch as the parents were unknown, and the effect of the traumatism was only to bring forth the intellectual troubles in a brain already prepared.

The patient who is the subject of the second observation does not show any neuropathic antecedent, hereditary or personal. It is not possible to appeal to any preoccupation, the dread of the operation or the fear of death. She knew that the operation alone could save her life, and she decided to courageously undergo it. The results of the operation were excellent; the recovery was rapid. It is necessary, then, to conclude that the operation alone was sufficient to bring forth the mental troubles.

ALCOHOLISM AND RESPONSIBILITY.—THE SOCIAL AND ADMINISTRATIVE ASPECT OF THE QUESTION.

MR. VILLENEUVE.—I desire to submit to the society the observation of a man brought before the Court of Queen's Bench to be tried on an accusation of having illegally attempted to commit suicide. The action was brought in virtue of Article 338 of the Criminal Code of 1892, which article reads as follows: "Any one attempting to commit suicide is guilty of an illegal act and liable to two years imprisonment."

The attempt, or rather attempts, at suicide of which L. T. is accused, were made in a police station cell, and the circumstances under which they took place were told by the police officers at the preliminary inquiry held by the police magistrate. L. T. had in succession tried to cut the radial artery of the left wrist, to hang himself and to strangle himself.

When he was locked up at the police station the accused, who had been drinking heavily for two or three days, was in a very advanced state of intoxication and had a very wild appearance.

The fact and the seriousness of the attempts at suicide are indisputable; they are corroborated by the testimony of witnesses worthy of belief, and the prisoner himself still bears the marks. As to T. himself, he declares that he never had the intention of committing suicide; he recollects nothing, and receives only with some hesitation the story of the police officers.

At the time of examination L. T. did not show any intellectual trouble, his state of mental health during the whole time of our observation could not furnish any ground for doubt; his clearness of mind is perfect; his memory is sure and reliable; he perfectly understands his position; he voluntarily says that he profoundly regrets the abuses of drink to which he gave away; one thing is certain, he realizes the consequences. He does not rave on any subject, and he does not experience any sensory troubles.

Moreover, his sanity was never suspected except on the occasions when he himself gave up to alcoholic abuses. His neighbors say that only relatively a very small quantity was enough to make him drunk, and that when in that state he acted like a fool. Even once, when he had made an attempt at suicide, in a drunken spree, he was sent to an asylum in the United States

and confined there. L. T. says that when sober he never had the idea or desire to commit suicide; at all events, he never made an attempt to kill himself except when in liquor.

L. T. is 26 years of age; he has been married for six years. His father is a respectable citizen, a total abstainer, of irreproachable conduct, of ordinary intelligence, and has never shown any intellectual trouble. The very fact that he has been employed in the same position for the past thirty years is ample proof of the regularity of his conduct. His paternal grandfather was an inebriate given to frequent and prolonged sprees; a paternal uncle (or uncle on his father's side) was an inebriate, going on sprees, and often had delirious attacks following his abuses of alcoholic stimulants. His father's married sister died at St. Jean de Dieu Asylum in two weeks' time from an attack of acute mania, consequent of fatigue suffered and watches undertaken during the sickness of one of her nieces and of the grief experienced at her death. She had frequent attacks of mania of great intensity and of sufficiently long endurance both before and after her marriage, resulting from the most trivial causes, such as loss of sleep at night, contradictions, etc.

The prisoner is of small stature; the development of his head is considerable for a man of his size; the measure of his hat is No. 7. A lump on his left temple, a slight deflection of the nose, and a default in one of the points of his chin, all of which give him an appearance of want of symmetry quite noticeable.

The information which I have concerning his mode of life is not very full and should be cautiously considered. It has been furnished me by one of his classmates, whose recollections are rather dim; by his father, who fears him and trembles lest his son should take his life, and who would like nothing better than to see him confined; by his wife, who seems to be indulgently inclined, and by the prisoner himself, who desires nothing so much as his freedom, and seeks, with that view, to belittle the effect of his errors.

Throughout all their exaggerations and reticences, the character and conduct of L. T. unfold themselves distinctly, as follows from the clinical observation of the facts. At college he was considered a bright student, notwithstanding a propensity for laziness. He got along well in his classes, because it required

little effort on his part to learn. But he was shunned on account of his sullen temper, and he was generally looked upon as a badly balanced mortal. Later, after leaving college, he always fulfilled, with intelligence, when sober, the duties confided to him. His last employers testify that, when sober, L. T. gives them entire satisfaction; that he is an excellent employee, polite, of good manners, laborious and intelligent.

The fact of having kept him in their service in spite of his misdeeds, and of having taken him back after his conviction, is ample evidence of the good opinion his employers have of his intelligence, work and capability.

His habits of intemperance have become boisterously manifest, especially since his marriage. Previous to this nothing was noticeable, but his father is of opinion that he drank secretly outside with his friends, and that he, in this manner, contracted the habit for drink. However, since his marriage, he frequently got drunk, never letting more than a month or two pass without going on sprees lasting several days, except when he was confined, either in the asylum or in prison; for the disorderly manifestations of his drunkenness had him often arrested on the streets, and his repeated attempts at suicide were the cause of his being cited several times before the courts.

L. T.'s drunkenness almost always shows the self-same character. He gets drunk very easily, and alcoholic stimulants act on him with great rapidity; a few glasses and he completely loses control of himself. He then drinks until he becomes mad; if he is thwarted he becomes violent. On one occasion he knocked his wife down and seized her by the throat to force her to give him money for more drink. When he is drunk he is wicked, aggressive; he strikes, swings his arms and breaks the furniture. He threatened his father, and the latter had several times great trouble to subdue him. After a short while, and sometimes within 24 hours, alcoholic delirium makes its appearance, manifesting itself by night-mares, nocturnal fears, and specific hallucinations, which are not slow in coming. He sees his dead relations, fantastic animals, bugs as big as elephants, who open enormous fans; he sees rats creeping over his body, etc. On several occasions he had violent epileptic fits, accompanied with falls to the ground, tonic and clonic convulsions, deep snoring, intense

twitchings of the face, and frothing at the mouth. As soon as he is deprived of liquor, delirium promptly leaves him and he rapidly regains his senses, and the intellectual troubles do not further bother him. It was after a series of similar spree, and mostly always in the police cells, where he was confined as drunk and disorderly, that he was guilty of his attempts at suicide, which can be counted at least by the decade.

It was impossible for me to procure exact facts on the subject, for the prisoner does not remember, or pretends not to remember, or have the slightest recollection of the acts he commits when in an advanced state of drunkenness; all that he pretends to know is what they tell him. In New York, where he lived for the first years of his marriage, the delirium always following his drunken spree, and the convulsive attacks to which he was subject, were often the cause of his being taken for a fool or an epileptic by people who were not acquainted with his antecedents, and several times he was brought to Bellevue Hospital to be examined with a view to his commitment to an asylum. However, as these morbid appearances, notwithstanding their intensity, quickly disappeared with the privation of alcoholic stimulants, he was not committed, as he had full possession of his senses. Once, however, following an attempt at suicide by drowning, December 24, 1894, he was brought to the hospital suffering from a convulsive attack, and as he had delirium, the doctors, who did not know him, believed him suffering from delirious epilepsy, and made out a certificate of mental aberration. The following day he was transferred to the asylum. He remained there until March 30, 1895. The day after his arrival he was perfectly sane, spoke reasonably, and was in a state to give the doctors all particulars. He recalled having been drinking and causing disturbances in a street car, but he had no recollection of his attempt to commit suicide or of his having been in the hospital, where he must have shown some intellectual trouble, for the examining doctors testify that he replied to the questions after the manner of an epileptic. All the time of his stay at the hospital he had no convulsive attacks, and he never showed the least intellectual trouble. We have previously seen that outside of his drunken excesses L. T. had never shown any intellectual trouble; that he was considered a very intelligent man, and he had given

proof of remarkable business qualities. It then clearly follows from the study of the phenomena presented by L. T. on the night of July 24, 1897, in connection with that of similar previous fits, that he made the attempt at suicide during a fit of alcoholic delirium sufficiently pronounced to make it possible to declare that he had lost all consciousness; that he was not capable of appreciating the nature and the seriousness of his act, and realizing that the act was wrong and that he was incapable of controlling his will.

L. T. can then on this point be declared irresponsible, and his behavior is manifestly due to an abnormal or pathological inebriety. But it appears to me that here we can ask the prejudicial question, namely, is the prisoner capable, and in what measure, to prevent himself from drinking?

L. T. is intelligent enough to realize the consequences of alcoholic abuses; he does not drink in pursuance of a frenzied idea or of an hallucination. It remains only to be seen that L. T. is fatally and irresistibly driven to drink by an impulse, that is to say, if he is suffering from dipsomania, or else if his will-power is strong enough to overcome his appetite for alcoholic liquors.

As we have previously seen, the patient became by degrees accustomed to drink with friends without the knowledge of his father. By degrees his drunken spree became more frequent and of longer duration, so that now he often gets drunk. He in this manner contracted the taste for alcoholic liquors, from habit, so that he is in a state of habitual appetite, of which he has knowledge, since he takes certain precautions to shun this evil. For example, he sends his wife to collect his wages in order not to have any money about him; nevertheless, when the occasion arises to accept a glass from a friend or to offer one in celebration of a sale, or to close a bargain, he does not shun it. He says to himself that there is no harm in taking a glass and that he will stop there. Unfortunately this first glass calls for a number of others, each one being the last. He always thinks that he will be able to stop in time.

There is a vast difference between these alcoholic excesses and the fits of the dipsomaniacs, irresistibly forced to drink by an uncontrollable impulse, arising outside of any occasion, preceded and accompanied by characteristic symptoms, making a

well-defined morbid entity, in fact, a disease for which a dipsomaniac can in no way be held responsible no more than a fever patient for his typhoid fever, a consumptive for his tuberculosis.

We can then affirm that L. T. is not driven to drink by an irresistible impulse, and that consequently he is free to drink or not. But to what degree? Such is the question that we must now answer.

Drunkenness often shows pathological marks that are sufficient by themselves to point out traces of a morbid predisposition and predisposes the person to easily get drunk; his physical resistance, in the presence of alcohol, is often so weak that drunkenness overcomes him after taking a quantity which would have no effect on a well-balanced man (Legrain). And more than that, this drunkenness rapidly renders the form abnormal and complicated (Vetault).

Such is absolutely the case of L. T. He shows an abnormal susceptibility to the poisonous action of alcohol, indicating a defective mental organization, which must naturally be attributed to a predisposition inherited from his grandfather, and which is also affirmed by the delirious alcoholism of his uncle and by the insanity of his aunt, befalling her from causes altogether trivial, insufficient of themselves to affect a mind not disposed thereto.

Legrain says in his study on the heredity of alcoholism: "Another principal point that we have established is the fatal hereditary transmission of the appetite for strong drink in a great number of cases." In this same treatise he adds: "That one of the great signs of mental degeneration is the great facility with which the sick people let themselves be influenced, and that they are often of weak will-power." It is then justifiable to admit, taking into consideration the circumstances of the prisoner's mental state, that his voluntary action can be lessened by a predisposition that he has inherited.

Conclusions.—The following conclusions naturally present themselves to my mind: L. T. should not be considered as a lunatic, as no mental weakness, nor any signs whatever of delirium could be found in him. At the time of the criminating offense his mental faculties had undergone a complete obscuration on account of the profound drunkenness in which he was plunged.

As the fact of the drunkenness does not depend on the sick-

ness, properly speaking, it does not belong to me to judge of the penal responsibility of the accused, the judgment of which belongs to the courts. However, on account of the morbid heredity which makes him a *predisposé*, there can be admitted in his favor a palliation of the penal responsibility. L. T. could advantageously be confined in an inebriate's home such as they have in other countries for patients of this kind.

MR. VALLÉE.—The communication that Mr. Villeneuve has just made us is very interesting, but I do not entirely agree with the conclusions of his report.

Mr. Villeneuve does not believe that L. T. is responsible for the attempt at suicide committed while he was drunk, but he is of opinion that he is responsible for his drunkenness. Now, from his family history, it is evident that he has inherited this tendency. Several cases of insanity can be found in his ancestors. Besides, he shows an excessive susceptibility to alcoholic influences. A small quantity of alcohol is sufficient to completely derange him.

His intoxication is not like the ordinary drunkenness; it is marked by so profound mental disturbance that he remembers none of the dangerous actions committed while in that state.

The moment he begins to drink he is intoxicated; then he loses all consciousness, and on each occasion makes efforts to kill himself. When he is in his normal condition there is no inclination of this kind. He knows what he exposes himself to in getting drunk, nevertheless he begins again when an occasion presents itself. Does it not appear as if he was really impelled by some irresistible impulse?

It is very true, he claims, that if he drinks, it is because he wishes to drink and that he could abstain if he liked. But, I believe, we must take this affirmation with some caution, for the degenerates of this class very often deceive themselves.

Do we not often hear insane people, after their recovery, give expression to similar pretensions? In the case of hypnotized persons, do they not maintain that they are free when they are not?

At all events, Mr. Villeneuve regrets that we have not special establishments for the unfortunates of this class such as exist in other countries.

He would be ready to recommend the commitment of L. T., not to prison nor to an ordinary lunatic asylum, but to a special institution. Now on what grounds would you commit him? If he is responsible he should be made to answer for his actions, and, if found guilty, he should be sent to prison. On the other hand, since we propose sending him to a house of treatment, it is because he is considered a sick man, susceptible of being cured or at least improved.

I am of this opinion. In fact, L. T. is an *alcoolique*. He suffers from weakness of the will, and in a great measure his responsibility is to be considered attenuated by this weakness. It is often very difficult for the doctor to pronounce on the mental state of an individual who has committed an act whilst in the state of drunkenness. Here the doctor is called upon, theoretically, for a decision without seeing. He should take into consideration the individuality of the patient, the nature of the guilty act, and the circumstances leading to drunkenness.

As to L. T., his family history shows that he inherited this tendency, and though quite intelligent in the ordinary affairs of life, the brutal manner in which he gets drunk after taking a small quantity of alcohol is evidence of an abnormal organic susceptibility. Drunkenness takes many forms, but in this case real folly seems to be the immediate result.

It was then decided that at the next meeting the question of alcoholism, and the establishment of special hospitals for its treatment, would be in order.

The meeting adjourned.

E. P. CHAGNON, Secretary.

Notes and Comment

CRAIG COLONY PRIZE FOR ORIGINAL RESEARCH IN EPILEPSY.

—The President of the Board of Managers of Craig Colony offers a prize of \$100 for the best contribution to the pathology and treatment of epilepsy, originality being the main condition.

The prize is open to universal competition, but all manuscripts must be submitted in English.

All papers will be passed upon by a committee, to consist of three members of the New York Neurological Society, and the award will be made at the annual meeting of the Board of Managers of Craig Colony, October 10, 1899.

Each essay must be accompanied by a sealed envelope containing the name and address of the author, and bearing on the outside the motto or device which is inscribed upon the essay.

The successful essay becomes the property of the Craig Colony for publication in its Annual Medical Report.

Manuscripts should be sent to Dr. Frederick Peterson, 4 West 50th Street, New York City, on or before September 1, 1899.

ANNUAL MEETING OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-fifth annual meeting of the American Medico-Psychological Association will be held in New York May 23-26, 1899. The officers announce with much satisfaction that the annual address will be delivered by Dr. Frederick Peterson. The program promises to be of unusual interest. The secretary reports that there have thus far been promised papers by Dr. Worcester, "The Relation of Renal Disease to Mental Derangement;" Dr. Richardson, "The Practical Value of Prophylaxis in Mental Diseases;" Dr. Eyman, "Metaphysics;" Dr. Drew, "Reflex Irritation with Special Reference to Eye Strain—a Factor in Nervous and Mental Diseases;" Dr. Granger, "A Review of the Literature for the Instruction of Nurses in Institutions for the Insane;" Dr. Clark, "A Third Chapter in the His-

tory of Canadian Jurisprudence of Insanity;" Dr. Blumer, "The Boarding Treatment of the Insane in America;" Dr. Sanger Brown, "The Etiology of Paretic Dementia;" Dr. Searcy, "Some Inconsistencies, Legal and Medical, about Insanity." Also papers by Dr. Sachs, Dr. Hoyt, Dr. Rohé, Dr. Wade, Dr. Burgess and Dr. Tomlinson, Dr. A. Hrdlicka and Dr. Boris Sidis, the titles of which have not been announced.

It is planned to incorporate in the program a symposium on paretic dementia and one on puerperal insanity. Dr. Tomlinson will take part in the discussion on puerperal insanity, and Dr. A. W. Hurd will discuss the "Differential Diagnosis of Paretic and Pseudoparetic States."

At this date (December 22) the hall for meetings and hotel have not been decided upon. A formal announcement will be issued as soon as definite arrangements are made.

PHILIPPE PINEL, 1745-1826.—An American, hiding his identity under the initials J. M. B., moved by the sight of Robert Fleury's celebrated painting representing Pinel in the act of freeing insane patients at the Bicêtre, has prepared and published in excellent form, under the above title, a brief tribute to Pinel, to accompany a memoir of the same written by Rev. Francis Tiffany, the biographer of Dorothea L. Dix. The memoir is appreciatively written and presents many details of Pinel's life, of great interest to all interested in the movements which have improved the condition of the insane during the past century. Hence we offer no apology for reproducing those portions of the little volume which tend to bring the personality of the great reformer more clearly before our readers.

Philippe Pinel was born April 20, 1745, during a temporary absence of his mother from St. Paul, at St. André, France. His father was a country doctor, poor and with five children to support, whose early education he cared for by hiring a private tutor.

From the start the boy developed the student temperament, and was by nature grave, recluse, and devouringly intellectual. Sent at the age of thirteen to Lavour to the Collège des Doctrinaires, he took such distinguished rank in the humanities as later, under the direction of a professor, to be employed in teaching his fellow-pupils logic, ethics, and metaphysics. It seemed

at first that his destination would be the Church, to which the benevolence and piety of his mind strongly inclined him. Indeed, when at home on vacations, he conducted the religious services of the family as a kind of household priest. The fascination, however, of the natural sciences steadily gained power over his mind, and he resolved to devote himself to the medical profession.

With this in view, young Pinel went for study to Toulouse at the age of seventeen. He was poor and his father could do nothing to help him. So he supplied his own scant needs through lessons in mathematics. It was little outwardly he required. His "mind his kingdom was"; and, with the passion of a universal student, he felt in no haste to shorten the days of acquisition and get into practical life. A profound classical scholar and endowed with poetic sensibilities of the rarest kind, much of his time was spent over his *Æschylus*, *Sophocles*, *Pindar*, and *Plato*, as well as over *Virgil* and *Horace*. He read deeply into history, ancient and modern, and mastered the English language. His geometrical studies he pushed so far and in so original a way as later to command the admiration of experts. Thus not till the mature age of twenty-nine did he receive his doctorate of medicine.

To open up to himself still wider opportunities, Pinel later on changed his residence to Montpellier, then one of the most famous schools of medicine in France. There he attempted to begin professional practice, but was again thrown back for support on lessons in mathematics. However, nothing daunted, he absorbed himself in studies in comparative anatomy and physiology and on the application of scientific analysis to the classification of human diseases. So far nothing gave promise of the daring innovator he was ultimately to become,—the successful practitioner consulted from every quarter of Europe, the man decorated and titled by all learned societies. Nor is the reason for this far to seek.

In his eulogy pronounced on Pinel, the world-renowned Cuvier contrasts the hardihood of spirit displayed by his subject in applying to medicine methods as rigid as those of geometers, and in carrying into his language the precision of the naturalist, with the extreme reserve and timidity of his nature in confronting the

outside world. "It was this," he adds, "which kept him so long back from the success and ascendancy which were his due."

We strike here on a deep-seated element in Pinel's nature,—an extreme of sensibility, which, in contrast with the world's rough-and-ready ways, put him at grave disadvantage: often paralyzing his great powers and enabling unspeakably inferior men to impress themselves on the common mind as his superiors. Alongside with this went that habitual abstraction of the profound student, which in common language is derided as being "'way off in Egypt," when one ought to be on hand now and here. Even as a boy, Pinel himself narrates how he would sometimes go hunting with his father; but the sight of the dead or wounded game so distressed him that he would take along his favorite authors,—Virgil, Horace, Pliny, or Tacitus,—and lie under a tree, absorbed in reading, till the day's sport was over. Indeed, in illustration of his habit of abstraction, his nephew records: "My father has often recounted to me that, when studying together in Toulouse and lodging in a very humble room, he has frequently on awakening found my uncle at the place he had left him on retiring, his elbows on the table, and his hands supporting his head, still absorbed in a state of meditation."

When, after a three years' vain attempt at success as a practitioner in Montpellier, Pinel finally, in 1777, made up his mind to seek his fortune in Paris, the same fatal drawback accompanied him thither. He was then thirty-three years old, and so poor that he made the journey on foot. Carrying with him a letter to Cousin, the great geometer was at once struck with his genius for mathematics, and counselled him to devote his life to its pursuit. But he resumed his old ways of gaining a modest living by teaching, and was soon absorbed in the study of the works of Borelli, in their application of the laws of statics and mechanics to physiology. Besides he wrote articles for the *Gazette de Santé* and translated from the English Cullen's "Institutes of Medicine." Meanwhile he was making a strong intellectual impression on men of the calibre of Cabanis and Thouret.

At last, then, he had gained friends willing and powerful enough to help him, if only he would not stand in his own light. This was an obstacle hard to be overcome. When, for example, his friend Desfontaines presented him to Lemonnier, physician

to Louis XVI. (to procure him the position of doctor to the aunts of the king), he scarcely spoke, remaining so mute that the princesses formed so low an opinion of him as to refuse to accept him. Three times he appeared before the faculty in competition for the chair of regent doctor, and three times signally failed in the public trial. Finally, in 1784, at the advanced age of thirty-nine, he offered himself a fourth time. On this occasion his competitor was a former army surgeon, a man of powerful frame, a sonorous voice and imperturbable assurance, though ignorant to the last degree; while Pinel was below the medium height, of feeble voice, embarrassed in manner, and halting in speech. The burly army surgeon carried the day; and all that was left Pinel was to console himself by humorously demonstrating algebraically to his friends the comparative chances such public competitions offered to recent cram and resounding brass over years consumed in the most arduous preparation. . . .

Fourteen years had passed since Pinel's removal from Montpellier to Paris; and except within a narrow circle of such select friends as Helvetius, Cabanis, Condorcet, Thouret, D'Alembert, Hallé, and Lavoisier, he was still an unknown man. But all the while he had been laying in enormous erudition the foundations for his coming career. As far back as 1782 the cruel death of a friend driven insane by poverty, study, and excess of ambition for glory, had directed his mind to the study of mental alienation. In contrast with the wretched means of treatment prevailing, he had been struck with the judicious precepts of the ancients, and, besides, for five years had conducted observations on mania and the application of moral remedies in a private asylum (*Maison de Santé Belhomme*).

At last broke the dawn of a better day. Cabanis, Cousin, and Thouret were placed at the head of the administration of the hospitals of Paris; and then with united voice they cried, "Here is the sole man in France capable of remedying the disorders reigning in the insane asylums!" At once they demanded his appointment to the Bicêtre, the horrors of which have already been described; and the great work began.

The heart of Pinel was torn by what he now saw in daily and hourly intimacy of contact, familiar as before he had been with it in the mass. He found within the walls but one man able, prac-

tically, to help him,—a sound-headed, human-hearted medical attendant named Pousin, a man indeed of little education, but of strong common sense and active humanity.

It was, however, from without, and not from within, that the most virulent opposition was to be encountered. An insanity of suspicion, wrought to the pitch of outright hallucination,—quite as marked as any mania inside the walls of the Bicêtre,—reigned in the minds of the revolutionary government. Was not this apparent zeal for the fate of howling madmen a mere cloak to conceal the hatching of some diabolical plot of the aristocrats? None the less, though his own life was in peril, Pinel set resolutely to work, studying the individual characteristics of his patients. He flattered the self-love of some, promised satisfaction to the reasonable requests of others, controlled with kindness and firmness the delirious fancies of others, and tried to gain the confidence of all by holding out hopes of a better lot and of a return to their families through abstaining from violence and disorder. Finally, when he had gained ascendancy, he was ready to face the bold experiment of freeing them from their chains, and according a measure of liberty in the yards of their respective divisions.

For this last step, however, there was need of government authority. Appeal for permission had first to be made to the terrible Couthon, then presiding over the redoubtable commune of Paris, to that paralytic monster who, from his litter, had harried on the savage sack of Lyons, and then, as he was borne through the streets, had marked with his own hand the rows of houses doomed to destruction.

Couthon's suspicions were at once aroused, and he refused permission till he should have gone in person to the Bicêtre to investigate. What more plausible than that the proposal to unchain these wild beasts covered some desperate plot of the aristocrats to let them loose for the massacre of the friends of the people!

Arrived on the scene, even Couthon, at home amidst the frenzy of mobs, was appalled. "Are you mad yourself to want to unchain these ferocious beasts?" "No," replied Pinel; "but I am certain that these wretched beings are so violent and crazed only because they are chained. I am convinced that, when they

no longer are, they will calm themselves, and perhaps grow rational." Unquestionably there was in Pinel's look and tone a moral ascendancy—the eye of a Van Amburgh in a cage of tigers and leopards—that awed the ferocious revolutionary; for Couthon cried, "Do as you please!" and left.

Forthwith Pinel set to work, and the next day struck off the chains from fifty and a few days later from thirty more. . . .

Still, ignorance, superstition, and political fanaticism continued to dog the steps of the great man. Couthon himself had been brought over; but in the minds of the half-insane populace an idea had got lodgment, akin to the delusion so common in panic times of cholera, that the wells have been poisoned by the doctors. Under this wild frenzy a frantic mob one day seized Pinel, and was dragging him off to hang him by the street-lamp rope, when Chevigné, an old soldier of the French Guard, charged furiously in among the throng, and rescued him from their hands. The man himself had been one of the insane whom Pinel had freed from chains, restored to health, and then taken into his own service.

To tell the whole truth, however, these wild suspicions on the part of Jacobin leaders and frantic populace were not without a grain of foundation. In those terrible days of hunting down noble men for the guillotine, the tender humanity of Pinel led him to harbor more than one intended victim in the guise of an insane patient. Indeed, in doing his utmost to save Condorcet, Pinel bravely risked his own life.

For a term of nearly three years the great reformer carried on his work at the Bicêtre, and was then appointed to the charge of the Salpêtrière, in which vast asylum he was destined to remain for the rest of his long life. His positive genius at last recognized, he was in the following year named one of the board of professors to organize the School of Medicine. Crowds of students now flocked to his lectures fired with the hope of at last making a positive science, instead of empirical guess-work, out of medicine; among these students, Bichat, whose splendid genius was destined to inaugurate a new epoch in histology. . . . Of all this new work of science and humanity, Pinel was now the grand legislator. His "*Traité Médico-philosophique sur l'Aliénation Mentale*," published in 1800, became a guide commanding uni-

versal reverence, a chart precise and clear through what had been a pathless wilderness. Though modifications in his classifications were later made by his great pupils, Esquirol and Ferrus, he, nevertheless, had laid down solid foundations never to be removed. Far more than a mere medical treatise, his was a work of the profoundest philosophical reflection and moral insight, indispensable alike for physicians and all students occupied with psychology, education, legislation, and the administration of justice; for into all these departments did the gravest questions growing out of insanity extend. Throughout its pages the commensurate experience, immense erudition, tenderness of heart, and fire of justice of the man made themselves felt, lifting the subject into universal relations. Later followed his "*Nosographie Philosophique*," for twenty years the acknowledged standard of students and practitioners, and which placed the final crown on his European reputation.

It is pleasant to record that after the severe struggle and humiliating neglect of his earlier period the middle and later years of Pinel's life were full of honors. In 1794 he was called to the chair of hygiene along with Hallé, and in 1795, at the death of Doublet, to that of pathology. He was named Member of the Institute in 1803, consulting physician of the Emperor Napoleon in 1805, and Chevalier of the Russian Order of Saint Michel in 1818. Of the closer relations into which his appointment as consulting physician to the emperor brought him with the world-famous man, a single anecdote remains. When Napoleon returned from Elba, at a reception of the Institute the emperor asked him if the number of the insane was increasing. "I answered no; but I thought to myself that superior geniuses and famous and ambitious conquerors were not exempt from a trace of madness." . . .

In personal appearance Pinel was of small stature, but well proportioned and of strong constitution. He had a broad, high, and prominent forehead, black hair and aquiline nose, rounded chin, small mouth, and a sweet and affable smile. His physiognomy was a mingling of benevolence and reflection, his bearing reserved and austere. "In seeing Pinel," says Dupuytren, "one would have imagined he was looking at a Greek sage. His nature was tender and sensitive. He loved beauty and sublimity.

He always kept up his taste for poetry, and was passionately in love with the masterpieces of antiquity." Indeed, his biographer narrates that his poetic sensibility was so extreme that, in discoursing of a fate so fraught with glory and misery as that of Sappho, he would sob with emotion. . . .

Philippe Pinel died at the advanced age of eighty-one. Losing his first wife in 1812, he was remarried in 1815 to a woman of a devotion so absolute that, when there came to him at the age of nearly eighty the loss of public position, and he was left with resources too limited to keep up his previous modest style of living, she denied herself to the uttermost to let no mark of the change appear.

Death came October 25, 1826. The concourse that followed the bier to the cemetery of Père-la-Chaise was immense,—the most eminent scientific man of France, troops of reverent students, and with them throngs of former inmates of the Bicêtre and Salpêtrière who went out to pay the last tribute of tender respect to the benefactor whose wisdom, mercy, and courage had delivered them from the scourgings and chains of ignorance and barbarity.

THE BEDBOROUGH TRIAL.—There seems to be the world over a tacit conspiracy to adopt the ostrich method of exploitation where the sexual passion is concerned. If here and there a d'Annunzio apotheosises the carnal and misdirects his brilliant talents to the sanctification of lust, we find in the bold license of the prose-poet of Latin race but the proving and extreme exception to the rule. That there is much purblind hypocrisy, even an obscene puritanism, in the conventional attitude towards this strongest of all instincts cannot be gainsaid. "Naked and they were not ashamed," and "to the pure all things are pure," are seemingly not the ideal of modesty to which men would strive or subscribe and "*honi soit qui mal y pense*" no longer affords an ægis against the cant and obloquy of overnice people who warm themselves snugly by the fire of their own greater purity. But even thin-skinned purists, however much they may upturn the eye when sexual matters are discussed in general literature, have conceded to the scientist, at least in this country, the right of scientific research in every field of enquiry and

with it the utmost freedom of speech in publishing results. "Then know, that so far to distrust the judgment and the honesty of one who hath but a common repute in learning, and never yet offended, as not to count him fit to print his mind without a tutor and examiner, lest he shall drop a schism or something of corruption, is the greatest displeasure and indignity to a free and knowing spirit that can be put upon him."¹

This thought is suggested by the extraordinary straits in which a respected British scientist of world-wide reputation finds himself to-day. On May 31, 1898, Mr. George Bedborough was arrested for selling to a disguised detective a copy of Havelock Ellis' book *Sexual Inversion*. He was charged before Sir John Bridge at the Bow Street Police Court with "publishing an obscene libel" (in other words, circulating an indecent work) "with the intention of corrupting the morals of Her Majesty's subjects." Mr. Bedborough was simply a seller of the book and in no way responsible for its production. The evidence showed that the sale was effected in a private house and that neither the book in question nor any other books were exposed for sale, or announced for sale, in the window or elsewhere. Says the distinguished author of the book: "No commercial transaction could conveniently be effected with less publicity. So that if the sale of my book could be regarded as improper under such circumstances, there were practically no circumstances under which it could well be regarded as proper." Thus, although Mr. Havelock Ellis was not technically a defendant, the effect of the prosecution was calculated to be as fatal to the book as though the police had proceeded directly against him. When the indictment was finally issued, it appeared that the whole book from the first page to the last, "and every line in such pages," was charged as "wicked, lewd, impure, scandalous and obscene."

As must be well known to the readers of this JOURNAL, Mr. Ellis has for many years devoted himself with conscientious thoroughness and singleness of purpose to the psychology of sex as his life's work. *Sexual Inversion* is the first of a series of *Studies* that will comprise five or six volumes, dealing in the main with the *normal* sex impulse. The incriminated passages,

¹ *Milton's Areopagitica*, quoted by Mr. Havelock Ellis in *A Note on the Bedborough Trial*. London: The University Press, Limited, 1898.

when read in court, proved to be simple statements of fact, Mr. Ellis' responsibility for them lying merely in this, that he judged them to contain in bald, uncolored language the minimum of definite physical fact required in such a book if it is to possess any serious scientific value at all. The trial took place on October 31st at the Old Bailey. Unfortunately, Mr. Bedborough elected to ignore the question of principle, and, in order to obtain the best terms for himself, pleaded guilty to a part of the charge. While the book was the real subject of the trial, and publisher and author were represented by counsel, these gentlemen, having no standing in court, found themselves in the singular predicament of having no legal opportunity to be heard. The judge, Sir Charles Hall, delivered himself thus: "You might at the outset perhaps have been gulled into the belief that somebody might say that this was a scientific book. But it is impossible for anybody with a head on his shoulders to open the book without seeing that it is a pretence and a sham, and that it is merely entered into for the purpose of selling this filthy publication." And having thus interposed the purity of his ermine to save Her Majesty's lieges from pollution, the judge released the defendant on his own recognizances. One rubs his eyes on reading, reads the astounding page again and asks: Can this be true? And the upshot of it all is that Mr. Havelock Ellis has decided not to publish the remaining volume of his *Studies* in England. We hope this means that he will find in America the generous reception of a less shackled press and less bigoted public and be here protected from the insults of a pusillanimous judiciary, although we do not forget that we have our own prudish persecutors who, taking the name of decency in vain, have before now themselves become obscene in their trumped-up charges against honest men. In his *Note on the Bedborough Trial*, from which these facts are gathered, the outraged author shows a temper as admirable as that of his persecutors is mean. His concluding words have the true scientific ring, albeit discovering a soul bleeding from a cruel wound, and should be as coals of fire on the heads of those who presumed in free England to exercise an impertinent censorship over a scientific publication: "To wrestle in the public arena for freedom of speech is a noble task which may worthily be undertaken by any man who can devote to it

the best energies of his life. It is not, however, a task which I have ever contemplated. I am a student, and my path has long been marked out. I may be forced to pursue it under unfavorable conditions, but I do not intend that any consideration shall induce me to swerve from it, nor do I intend to injure my work or distort my vision of life by entering upon any struggle. The pursuit of the martyr's crown is not favorable to the critical and dispassionate investigation of complicated problems. A student of nature, of men, of books, may dispense with wealth or position; he cannot dispense with quietness and serenity. I insist on doing my own work in my own way, and cannot accept conditions which make this work virtually impossible. Certainly I regret that my own country should be almost alone in refusing to me the condition of reasonable intellectual freedom. I regret it the more since I deal with the facts of English life, and prefer to address English people. But I must leave to others the task of obtaining the reasonable freedom that I am unable to attain."

It is THE JOURNAL'S privilege to send sympathetic greeting to Mr. Havelock Ellis across seas. It bids him be of good cheer and congratulate himself upon what he has accomplished by this painful trial in vindication of free speech and as an educator of public opinion.

PORTRAIT OF DR. H. A. GILMAN.—As a frontispiece of the present number of this JOURNAL we publish the reproduction of a photograph of the lamented Dr. H. A. Gilman of Mt. Pleasant, Iowa, the Vice-President of the Medico-Psychological Association, who died upon October 9, 1898.

Obituary

JAMES DUNLOP MONCURE, M. D.

On November 10, 1898, Dr. James Dunlop Moncure, late Superintendent of the Eastern State Hospital, died at his post of duty after an illness of one week.

Dr. Moncure was born in the city of Richmond, Va., in 1842. After attending the Abbott School in Fauquier County, Va., he was sent to some of the best schools of France and Germany. At the University of Heidelberg he began his medical studies. Returning to his native State, he entered the Virginia Military Institute, where he was at the breaking out of the war of '61-'65. At first he was drill-master in the corps of cadets at Camp Lee, and afterwards served to the close of that struggle in the field as a member of the 9th Virginia regiment of cavalry.

Resuming his medical studies, he attended at first the University of Virginia and later on the University of Maryland, from which institution he graduated with honors. He practised his profession in Baltimore, Fauquier County, Va., Huntington, W. Va., and Richmond, and in each locality with success. While located in Richmond he filled the chair of adjunct-professor in the Medical College of Virginia. In 1876 he founded the Pinel Hospital, near Richmond, an institution for the treatment of nervous diseases, and was its first Medical Superintendent.

From the College de France he received the degree of *Bachelier des Lettres et des Science*.

He was a member of the Virginia Medical Society, the American Medico-Psychological Association, the Medico-Legal Society of New York, etc.

Being an extremely modest man and having an aversion to appearing in print, he was not conspicuous in the public meetings of these societies nor a frequent contributor to current medical literature; nevertheless, he was a profound student of his profes-

sion, well versed in its literature, familiar with the advances made in the treatment and care of the insane, and recognized throughout his State as an alienist of much ability.

Among those who have held the responsible position of Superintendent of the old "Williamsburg Asylum," few, if any, possessed to a higher degree the qualities of an ideal physician and executive officer than did Dr. Moncure. During his continuous administration of 14 years many were the improvements, particularly of a structural nature, made at the institution, the latest being a Hospital Cottage, equipped with the most approved appliances for the treatment of the sick and those requiring surgical operation. When the history of psychiatry in Virginia is written, his name will justly occupy a prominent place upon its pages.

As one evidence of the high esteem in which Dr. Moncure was held by the Board of Directors of the hospital, the following resolutions were adopted:

WHEREAS, An All-wise Providence has seen fit to remove from our midst, and from his sphere of usefulness, our friend and associate, Doctor James Dunlop Moncure, late Superintendent of the Eastern State Hospital; and

WHEREAS, By our long intercourse with him officially and otherwise, we found him always faithful, efficient and conscientious in the discharge of his official duties, and in his social relations courteous and polite, living up to the high teachings of that peerless school of ethics in which he was reared; therefore,

Resolved 1st, That in the death of Dr. Moncure the hospital has lost a faithful officer, always at his post and ever ready to perform every duty in regard to the unfortunates under his care, who were always to him the objects of his tenderest solicitude; that the medical profession to which he devoted his talents and energies has been deprived of one of its brightest ornaments; that the State of Virginia has lost a true and devoted son who proved his devotion by four years of service in her defense, and who for years since had given liberally of his time and means in order to lighten the burdens of his less fortunate comrades in arms; that the community in which he lived has been deprived of a useful citizen known by his good works and without reproach.

2nd, That with heartfelt emotion we tender to the grief-stricken

family our deepest sympathy, accompanied with the prayer that "He who tempers the wind to the shorn lamb," may give them solace and consolation and enable them to bear, with resignation, the heavy blow that has fallen on them.

Dr. Moncure was twice married, and most happily each time. His first wife, to whom he was married in 1871, was a daughter of Dr. James Brown Moncure, of Richmond, one of the most distinguished physicians of the State. His second wife, who survives him, is a daughter of Capt. C. B. Trevilian, of Goochland County Va. He leaves several children.

As a physician Dr. Moncure was scientific and skillful, tender and sympathetic; as the chief executive officer of the hospital he was just and fair, courteous and considerate; as a man he was kind and generous—a Christian without guile or ostentation.

Of him it may well be said that

"His life was gentle; and the elements
So mix'd in him, that Nature might stand up,
And say to all the world, 'This was a man.'"

W. F. D.

CHARLES M. HOLMES, M. D.

Dr. Charles M. Holmes, a member of the American Medico-Psychological Association and First Assistant Physician at the Northampton Lunatic Hospital, died at that institution of typhoid fever on the 7th of October, 1898. He was an earnest student, a faithful officer and a loved associate.

JOHN B. HAMILTON, M. D.

Dr. John B. Hamilton, Medical Superintendent of the Illinois Northern Hospital for the Insane at Elgin and a member of the American Medico-Psychological Association, died of appendicitis at the hospital upon the 24th of December, 1898. Dr. Hamilton had but recently entered the specialty of psychiatry after a successful career as the Surgeon-General of the Marine Hospital Service, editor of the *Journal of the American Medical Association*, and teacher of surgery in Rush Medical College.

Book Reviews

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Nineteenth. (Philadelphia. Printed for the College, 1897.)

Of the several articles contained in this volume, the one of most direct interest to alienists is the discussion on the Relations of Nervous Disorders in Women to Pelvic Disease. The general agreement of gynecologists and neurologists, for there were very few exceptions, in the view that the influence of female pelvic disease in the causation of nervous disorders and insanity has been overestimated ought to carry much weight and to be seriously considered when operations on the female genitals in the insane are suggested. The debate, as an expression of expert medical opinion, certainly does not add to the safety of any wholesale operations on female lunatics in a medico-legal point of view, and this should insure reasonable caution. The fact is that pelvic operations in the insane are proper only on and for the same conditions as in the sane, and conservatism is even more indicated on account of the lack of capacity for consent. Modern gynecological tendencies are conservative as compared with what they have been at times, and alienists ought at least to be up to date in their ideas in these matters.

Other papers of interest are those of Dr. Van Harlingen on Hysterical Neuroses of the Skin, which is suggestive to the alienist in various ways, of Dr. Savery Pearce on A Study of the Blind, and others. The volume is a creditable contribution to American medical literature.

A Primer of Psychology and Mental Disease for Use in Training-schools for Attendants and Nurses and in Medical Classes. By C. B. BURR, M. D., Medical Director of Oak Grove Hospital for Nervous and Mental Diseases, Flint, Mich.; formerly Medical Superintendent of the Eastern Michigan Asylum; Member of the American Medico-Psychological Association, etc. Second edition, thoroughly revised. Pages ix-116. The F. A. Davis Co., Philadelphia, 1898.

In the April number of the JOURNAL for 1894 a review appeared on this excellent little work, so that little needs to be added except to reiterate the words of commendation therein expressed. The present edition has been carefully revised and improved. It also contains an additional part in the form of an address to attendants, giving what to do and what to avoid in the care of the insane. The advice is sensible and judicious. The primer can be warmly commended for the use of training-

schools for nurses and for students of medicine. It is clear, practical and useful.

The Gospel according to Darwin. By WOODS HUTCHINSON, A. M., M. D. The Open Court Publishing Company, Chicago, 1898.

It is safe to say that a man's view of the value of life is determined more by his temperament than his formal beliefs. Dr. Hutchinson's mood is expressed in the closing words of his first chapter:

"Life is a brave, red-blooded, warm-hearted, joyous thing, which needs no sickly phantasmic 'after-world' to render it worth the living."

Approaching the subject in this frame of mind, it is not surprising that he finds glad tidings of great joy in what has seemed to many a message of utter despair. He sees, in the doctrine of evolution, all and more, in motives for right living, in grounds of happiness in the present and of hope for the future, than was given in the old beliefs which, in his mind, it has superseded.

That pain and distress, bodily and mental, have, to an immense extent, been the motive power in the progress of the race, the necessary conditions of all that is most admirable in the physical, mental and moral world; that it is the struggle to escape from pain and evil, rather than patient submission to it, which makes for man's welfare; that joy and happiness are goods in themselves to be honestly sought and accepted without misgiving; that man's natural appetites, passions and propensities all have their uses, and are to be indulged in their proper time and place; that morality is the natural and necessary expression of man's nature, and that the natural tendencies to good are, in the long run, stronger than those to evil; that death has been a most potent factor in progress, and, when it comes by disease, is, at the last, neither dreaded nor painful; all these are important and cheering truths, which Dr. Hutchinson tells in a style which sometimes rises to eloquence, sometimes verges perilously on flippancy, but is always forcible. Especially noteworthy is the chapter in which the author shows that, contrary to the charge often made against the evolutionary theory, that the selfish and cruel would be the fittest to survive, in fact, affection, sympathy and mutual helpfulness have been the most potent factors in human progress and the sources of tribal and national strength.

We will quote only one passage out of many which are worthy of it:

"No one sees more of the sorrowful side of life than the family physician. And yet no one will more unhesitatingly affirm that in ninety-nine cases out of a hundred, even after the most terrible destruction of limbs, of senses, of usefulness, after the crushing bereavement of those dearer than life itself, in a brief period the balance of life adjusts itself again in favor of, first tolerability, then of joy. Not that the beam rises to the same angle as before, by any means, though it does this in a surprisingly large proportion, but that it does reach the level and a little more. No man who faces the situation bravely and works hard and honestly at the task which lies within his powers need fear permanent unhappiness."

On the other hand, Dr. Hutchinson shows some of the defects of his temperament. He does not exaggerate the benefits derived from the survival of the fittest, but it would hardly be gathered from his statement of the case that the extermination of the unfit is apt to be, both to them and to all whose sympathies are very sensitive, a painful process. There are multitudes to whom life is not and can never be made what he has described it, and to whom the feeling that they are only fit to be "swept as rubbish to the void" will bring scant consolation. Although he admits that vices are only virtues out of place, he falls into the mistake of supposing that the virtues to which he is most prone are more virtuous and their contrary vices more vicious than others. He devotes an entire chapter to enforcing the statement that courage is the chief virtue, and says that cowardice is the only unpardonable sin, both in the sense of favoring survival. As a matter of fact, cowardice is no more mischievous than foolhardiness, and its allied virtue, caution, is as important as courage. He has a chapter on "The Benefits of Over-population," in which he falls foul of the Malthusian theory in the most savage manner—rather an ungrateful proceeding in a disciple of Darwin, of whose doctrine it is one of the prime foundations. He instances England as an example of great prosperity accompanying density of population. He might as well have taken the city of London as his example. Cut off England from the supplies obtained from more sparsely populated regions and her population would be starving in a month. Another illustration is still worse for his view of the case: "The intrinsic value to the race of the noble horse is far greater than that of the cow or sheep, and although no check is ever placed on his increase by slaughter, we have no fear of being 'over-populated' by him or of his becoming a drug in the market, and why should we of his infinitely nobler, more perfect, and more useful brother man." The reason there is no equine over-population is that the Malthusian measure of limitation of reproduction is applied to the horse with more rigor than to any other of our domestic animals. Modern facilities of transportation enable manufacturing centres to support a much larger population than they can feed, but if one really wants to study the benefits of over-population he should look to India, where every short harvest eliminates the unfit to survive by the hundred thousand.

It would be putting the matter too strongly to say that Dr. Hutchinson has never a good word to say for prudence and forethought, but he evidently considers them to rank rather low in the scale of virtues, if they are to be admitted as such at all. That "discretion is the better part of valor," he would probably repudiate with all the energy of his nature. And yet nothing can be more certain than that it is to his superiority in this alone that man owes his pre-eminence over the brutes. Even in war, courage without judgment is about as useless as anything can possibly be. It was not due to superior valor that our navy annihilated that of Spain with less casualties than those of a football season, or that Kitchener's Egyptians slaughtered the dervishes by the ten thousand in almost perfect safety.

In fact, judging from what seems to us the exaggerated estimate which the author puts upon fighting as the highest and noblest of all possible pleasures, we are inclined to wonder if he does not feel out of his element in saving rather than destroying life, in healing, instead of inflicting wounds and broken bones. We can hardly wish him opportunity to gratify his tastes to the full in this respect, but if he can retain the overflowing vitality which is manifested in every page of his book, he will be likely to have far more than the average share of enjoyment, even if he is obliged to put up with tamer pleasures.

We suspect it may be precisely those who stand most in need of cheer who will derive least encouragement from Dr. Hutchinson's book. "The whole need not a physician, but they that are sick," and the many who, as a matter of fact, find life only tolerable, as well as the smaller number to whom its pains outweigh its pleasures, may be inclined to react against a mood so unlike their own. The strength of Christianity in all ages has lain largely in the hopes it holds out to those who are destitute of happiness and hope in this life. The Gospel according to Darwin contains no such message as was brought long ago by another bearer of good tidings: "Come unto me, all ye that labor and are heavy laden, and I will give you rest."

The Mental Affections of Children—Idiocy, Imbecility and Insanity. By WILLIAM W. IRELAND, M. D., Edinburgh, formerly Medical Superintendent of the Scottish Institution for the Education of Imbecile Children. J. and A. Churchill, London, 1898.

This book is, to a large extent, according to the author's statement, a reproduction of his former work on Idiocy and Imbecility. Additions have been made treating of the Development of the Brain in Childhood, the Pathology in Genetous and Paralytic Idiocy, Sclerotic and Syphilitic Idiocy, and the Insanity of Children. The recent literature of the subject has evidently been studied, and its results incorporated in the present work, which is, we think, valuable more as a summary of what is at present known on the subject than on account of any striking additions made to our knowledge by the author.

In treating of the causes of idiocy, in which, as the generic term, he includes imbecility, Dr. Ireland, although laying much weight on heredity, is disposed to consider the tuberculous diathesis, of which we do not hear so much as formerly, the most important of all. He quotes Dr. Seguin as attributing the increase of idiocy in New York to the assumption by women of the anxieties pertaining to both sexes. He accepts fright to the mother during pregnancy as a cause. Notwithstanding the multiplicity of stories supposed to show the influence of maternal impressions on the bodily and mental characteristics of the foetus, it is as difficult to frame any rational hypothesis as to their *modus operandi* in such cases before as after birth, and there will probably always be many who will be sceptical on this point.

The classification adopted is founded on etiological grounds. The

author recognizes genetous, microcephalic, hydrocephalic, eclamptic, epileptic, paralytic, traumatic, inflammatory, sclerotic and syphilitic idiocy, cretinism, including the endemic and sporadic or myxoedematous forms, and idiocy by deprivation. Some of these categories overlap, but, as the author says, it is not possible to frame a classification that is altogether free from objections. Idiocy by deprivation, however, meaning the condition in which a child remains who is deprived of two or more senses, is not idiocy at all. The deficiency in such cases is merely lack of education. The author alludes, in a foot-note, to a paper on the case of Helen Keller, published in 1889, which can hardly be considered up to date. He includes under the head of genetous idiocy the class of cases described by Sachs and, more recently, by Hirsch and others, of a disease noticed in Jewish children, characterized by amaurosis, paresis and mental failure, with uniformly fatal results in infancy. There seems to be no more reason for including such a condition than cases of cerebral tumor occurring in infancy.

Dr. Ireland does not accept the atavistic hypothesis in regard to idiocy. He points out convincingly, as it seems to us, that both the anatomical structure of the brain and the mental characteristics in idiocy, however profoundly modified, are human and not bestial.

In his chapter on the Sensory and Mental Deficiencies of Idiots, the author makes the very interesting and important observation *that when idiots use words they do not use them through mimicry of sound, but to signify ideas; they either speak with a meaning or not at all* (italics his). He instances a girl, under his care for many years, who was never heard to speak except on three occasions: Once she said "cat," on being shown a picture of a cat; once "horsey," on seeing a horse pass; and once, when in the bath, "Oh, dear!" The only word an idiot boy was ever heard to utter was "beef," on seeing some meat on the table. As every one who has had experience with children while learning to talk knows, the use of words is with them, at first, a matter of imitation, and the connection of ideas with the sounds a secondary matter.

Dr. Ireland's views as to the measures to be employed and the results to be expected in the education of idiots and imbeciles are sound and reasonable. He fully recognizes the fact that, under the most favorable circumstances, only a small proportion of such cases can be made self-supporting, and that in a great many cases we must content ourselves with a very moderate improvement in the habits of the patients. He favors a thorough training in the matters of every-day utility, rather than the one-sided cultivation of some special aptitude, especially where it is likely to be, after all, a mere curiosity. He is strongly of the opinion that the education of feeble-minded children, after the first few years, can be much more successfully accomplished in special schools than under private tuition at home. The injudicious fondness of mothers is often an insuperable obstacle to any proper training.

The book is well printed and quite abundantly illustrated, mostly by photographic reproductions of excellent quality.

Clinical Lectures on Mental Diseases. By T. S. CLOUSTON, M. D., Edinb., F. R. C., P. E.; Physician-Superintendent of the Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases in the University of Edinburgh. Fifth edition. Lea Brothers & Co., Philadelphia and New York, 1898.

"A medical book that is coming out in its fifth edition," says the author, "should need no preface. The demand for it has absolved its author from any further explanation of its existence." In like manner, the labors and responsibilities of the reviewer may be lightened, especially when, as in the present case, the work claims to be little more than a reprint of the previous edition.

The great merit of the book, in our view, is the freedom with which the author has drawn on the stores of his vast experience in the way of clinical illustration. His cases are interesting and admirably reported. On this account, if no other, no serious student of psychiatry can afford to be unacquainted with the work. On the other hand, we cannot but consider it entirely unsuitable as a guide to the beginner in matters of diagnosis. Dr. Clouston still adheres to the classification of Skae in its entirety. Although we are convinced that the etiological factor, when rightly understood, affords the best foundation for a classification of disease, we venture to predict that Dr. Clouston is the last writer of eminence who will accept Skae's classification, which seems, everywhere else, to have already fallen into "innocuous desuetude." But this is not the worst. According to our view, in his discussion of the symptomatology of mental derangement he confuses things that are, and have long been shown to be, quite distinct, and omits the mention of most important clinical facts. He says nothing of the states of mental confusion, except as incidents in mania and melancholia; the katatonic group of symptoms he dismisses in a paragraph in the chapter on States of Mental Alternation, although he gives some excellent examples of it in another connection. He may perhaps be pardoned, in view of the want of agreement among writers on Paranoia, as to definition, for declining to accept the term, but it seems hardly intelligible how any one whose attention has once been called to the subject can ignore, in the discussion of "monomanias," the usual evolution and transformation of the insane delusions and make such scant mention of their association with hallucinations.

Such lack of clearness in clinical distinctions is not a mere theoretical deficiency; it has a most important bearing on the matter of prognosis. Accordingly we find the author remarking, in the chapter on Senile Insanity: "As I do not recognize 'dementia' to be curable when used in a correct sense, I scarcely ever at first diagnose any recent case as such, no matter what the symptoms are at the time. To my mind, a patient is only proved to be labouring under dementia when, by lapse of time, he is seen to be incurable, and has the symptoms of mental enfeeblement as well." Of course the man who never commits himself is sure not to be convicted of mistakes, but it is entirely practicable, in a very large proportion of cases, to predict the outcome with reasonable certainty from

the start, and the man who makes his diagnosis accordingly, although he now and then makes a mistake, is, in our opinion, likely to be nearer right than one who implies in his diagnosis the curability of all his recent cases. We have little doubt that Dr. Clouston himself forms very decided and correct opinions in regard to the prospects of most of his cases at any early period, but he fails to give the data for prognosis to his readers.

Fortunately, accuracy of prognosis is not essential in a large proportion of cases, to judicious treatment, and Dr. Clouston's views on this subject strike us, in the main, as thoroughly sound. Although we incline to think that he underrates the value of rest and quiet in some cases, we believe him to be much nearer right than those who would treat all recent cases, indiscriminately, in bed. In the matter of drugs in general, and suphonal in particular, he is much more conservative than might be expected from some of the publications that have emanated from his institution. His final recommendation is as follows:

"The use of a course of thyroid extract, given in 60-grain doses a day, to produce a short five or six days' fever, as recommended by Dr. Lewis Bruce (see pp. 192, 294), is a most powerful therapeutic measure in many cases. No case should be allowed to become incurable without a trial of this method."

We incline to think that a physician who carried out this recommendation in all cases that seemed in danger of lapsing into dementia would have some unpleasant experiences. Very alarming symptoms sometimes follow much smaller doses. On the whole, however, we know of no book that is likely to be of more profit to such as are tempted to be therapeutic nihilists in the treatment of insanity than this. In this regard it combines enthusiasm with good sense in a degree that is not so often seen as might be desired, and some of the instances of recovery in apparently very unpromising cases are most encouraging.

Several new plates have been added, illustrating pathological changes as shown by the Nissl and Golgi methods.

The possessor of a previous edition of the work will, as we have already intimated, find comparatively little that is new in the present edition. Those who are not acquainted with it will find themselves amply repaid in its perusal.

Memoirs of Pliny Earle, M. D., with Extracts from his Diary and Letters (1830-92) and Selections from his Professional Writings (1839-91). Edited with a general introduction by F. B. SANBORN, of Concord, former Chairman of the Board of State Charities of Massachusetts and Inspector of Charities. Boston: Damrell & Upham. 1898.

The will of Pliny Earle provided that after payment of his debts his executors and "my friend, Frank B. Sanborn, of Concord, Massachusetts," should consult and advise with each other and determine whether a certain sum of money by him set apart should be devoted to preparing his biography. It also stipulated that Mr. Sanborn should be the biographer.

This book is the outcome of that council. In ordinary circumstances one might question the fitness for such a task of a reviewer who had practically been retained by the testator. The human impulse to show gratitude for the compliment thus paid by an almost life-long friend would be likely to overwhelm judgment and betray in the performance an undue partiality. But Mr. Sanborn is no ordinary man. Few critics there are who wield a pen that can stab like his or use an ink of equal blistering efficiency. The only effect of the peculiar conditions of the legacy, apparent in these memoirs, is a pleasing tempering of the author's usual polemic method inasmuch that one finds in this appreciation the genial critique of a life with reference to which the guiding motto has been not *de mortuis nil nisi bonum*, but *verum*. And after all, Mr. Sanborn was probably the only man in America capable of undertaking the work. This we say because like Pliny Earle he is a consummate statistician, familiar by long official experience with the fallacies of asylum arithmetic and able to brush aside the sophistries that befog the problem of the curability of the insane, upon the exploitation of which burning question Pliny Earle's reputation as an alienist chiefly rests. Moreover, Mr. Sanborn has himself travelled widely and takes, as only an intelligent traveller can, a sympathetic interest in the wanderings up and down the earth of his subject.

It is perhaps not too much to say that Pliny Earle was the first American alienist to grasp comprehensively the statistical relations of the public care of the insane. Until he appeared genius had not yet learned "the language of facts," as Emerson has declared it must. His contemporaries "took guesses and traditions for fact in too many matters, and were unreasonably sanguine of good results from specifics or hastily formed systems of treatment." Impressed, then, as so many of us still are to-day, with the beneficence of our mission, they naturally enough fell into the error of propagating the view that all the insane were curable if only they could be brought under early treatment. It was Pliny Earle who first exposed this fool's paradise, and Mr. Sanborn has for years, as all the world knows, been almost perniciously active in the like exposure. The biographer deals with this phase of his subject's life with interesting enthusiasm and conspicuous skill. He is frank enough to admit, however, that "a superficial and often pompous display of knowledge has given way to an earnest search for truth; and the difficulties of the situation are now faced with a better scientific and practical preparation than was possible a generation ago." Doubtless the earlier enlightenment of Pliny Earle was due not alone to his native candor of mind, but very largely also to the opportunity he enjoyed—at that time quite unusual—for extensive European travel. "This placed him above our American weakness of boasting ourselves the foremost in all things, as we are, no doubt, in some things." Indeed the open-mindedness of Dr. Earle, even when an elderly man, was one of his chief characteristics. In his address at the Chicago Conference of Charities in 1879, at the age of threescore and ten years, one looks in vain for the rigid, know-it-all view of the senescent philosopher. Instead of which one must admire the breadth of

his outlook on the whole field of psychiatry. "Many patients," he said, "are now committed from whom society has nothing to fear and whose best interests are thus promoted because they have no suitable home." He even joined in recommending that the hospitals as well as the central State authority should place the insane in Massachusetts families.

An admirable introduction to the book is followed by a chapter on Pliny Earle's birth, ancestry and childhood. The secretary of the Social Science Association here gives the reader an object lesson in heredity, showing also to what extent the career of his subject was influenced by his environment. It is a study in genealogy and sociology, to which Mr. Sanborn brings the expert knowledge of the specialist as well as the sympathy of one whose up-bringing was of the same sturdy New England kind. The whole picture has an abundance of what we believe artists call atmosphere and will be read with particular interest by those who seek light on the religious controversies of the early decades of our century. Chapter II is of a piece with Chapter I, dealing as it does with "Observations in New England and Philadelphia (1827-37)," and giving a picture of the conditions of life during that period as drawn from the copious diaries of the young man who was thoughtful enough to posterity to write them. There is, among many other good things, a capital description of a Philadelphia Christmas in 1835, the first young Earle had ever seen, since at that period one might have looked in vain for the reaction from Puritanism that now permits the New Englander everywhere to enjoy Christmas like a Christian. Mr. Sanborn speaks of the novelty of the scene as presented to "the serious-minded Quaker," and seems almost, both here and elsewhere, to apologize for the part taken in human pleasures by the medical student and later by the young physician when abroad. Pliny Earle, it is most refreshing to find, was able to meet the world with a smile and never allowed his Quakerism to interfere with the rational enjoyment of the social opportunity.

"England Sixty Years Since" is an England that takes us back to the days when transportation was a serious affair. Had the young physician made his journey on a modern liner and been carried hither and yon at lightning speed by the iron horse we could not have had this leisurely view of men and things as here extracted from his diary and letters. He sailed from New York, March 25th, 1837, and landed in Liverpool in the middle of May. One skims over his minute reference to the Quaker society in which he moved as a welcome guest from America and finds the memoirs too long to permit even close reading of the biographer's elucidating text. But the pen picture of the habits and manners of the England of that day will be found very interesting.

The best part of an evening is gone in hearing about stage-coach adventures and lively fellow travellers before the reader is conscious of the loss, or shall we not rather say of what he has gained pleasantly in insight into the England as young Earle saw it. He did not escape the patronizing condescension of the Briton of that day who mistook him for an Englishman because of his pure English speech. But whatever befell

him he was always the good-natured traveller who took life as it came, and there is no doubt the new experience broadened him greatly. "The English," says he, "understood the true philosophy of living better than the Americans, although perhaps they drink a little more porter and wine than is best. . . . There was a discussion on the subject at the Yearly Meeting in May. Many remarks had been made, both pro and con, when one of the assistant clerks of the meeting, a leading member of the society, arose. He said he must acknowledge that he was not ready to unite with the sentiments of some who had spoken. He was fully satisfied that, after the labors of the day, he had often experienced great invigoration from a glass of porter, and thereby been better prepared for the duties of the evening. No sooner had his coat-skirts touched the bench than a Friend, still higher in the 'rising seats' than himself, rose to clinch the nail which the brother had driven. Imagine a Friend of seventy years standing in the gallery, covered by a real primitive tri-cocked hat, and leaning upon a cane, to plead the cause of the juice of the grape, with an earnestness that would do credit to some of the young men on the other side of the question. Wine is set on the table by a much greater proportion of our society members than I had supposed. However, they rarely drink more than two glasses, and generally but one." This passage illustrates Pliny Earle's eminently fair way of treating all questions. One sees not the faintest trace of the bigot anywhere and withal there is a quiet enjoyment on the American's part of the would-be gayety of the wearer of the drab as he exhibits himself ever and anon on the human side in these English experiences. We think Earle himself must have suggested to the men whom he met at that period that "It is not the cowl that makes the monk." It was no unusual experience to have the request made to him, "Pray, sir, *let me turn down the collar of your coat.*"

In the entry from which we have just quoted (Sept. 9, 1837) the traveller mentions an evening spent with Samuel Tuke of the York Retreat. Their conversation turned upon lunatic asylums, the predominance of insanity among the Friends and the cause of such preponderance, this being the first intimation that he was specially considering what was to be his life-work in America and the occasion of several future visits to Europe.

Crossing the Channel to France, Pliny Earle studied medicine, apparently somewhat desultorily, under Louis, Broussais, Magendie, Ricord, Velpeau and others. He appears to have been too catholic and versatile a man in his tastes not to have enjoyed "other pursuits likely to further his present or his ultimate purpose." In the spring of 1838 he visited the Bicêtre and the Salpêtrière, and has left an instructive account of what he saw: "In two tubs we saw patients, each kept from leaving the tub by a board fitted to his neck where he sat, as a man stands in a pillory. One was a robust man, subject to varying hallucinations, who now thought himself the husband of the widowed Duchess of Berri, and had been permitted the day before to have writing materials on condition that he would not write such vagaries as that he was a favorite of the exiled

Bourbons and of Louis Philippe. He had written, however, his usual absurdities about the Duke of Bordeaux, Charles X, etc. Dr. Leuret, with this letter in his hand, reminded the patient of his promise, read him the nonsense he had written, and asked him if he still believed that. 'Oui, Monsieur.' 'Give him the douche,' said Dr. Leuret to the attendant, who at once turned the cock and discharged the stream on the madman's head. He screamed and writhed, and begged to have it stopped. It was checked, and he was asked, 'Do you still believe you are the intimate friend of Charles X?' 'I think I do.' 'Let him have the douche.' He again floundered, shouted, and begged for mercy. 'Well, are you the chum of Charles X and the Duke of Bordeaux?' 'I—I presume so.' 'Give him the douche once more.' In this way, sometimes with argument and sometimes with the cold stream, the doctor labored for half an hour to break up his fantastic notions. At last the patient gave in, and his tormentor gave him a lesson to be learned for the next day.

"Turning to the other man in his tub, Dr. Leuret said he had yesterday refused to do a task assigned to him, leaving the work untouched. He then asked the man why he had neglected to work. 'To tell the truth, Monsieur, I did not feel any special desire to work.' This was said with a jocose leer which almost made us laugh. 'Well, will you work hereafter when you are told?' Reflecting an instant, with the same comic air he said, '*Parole d'honneur*, I will *not* work.' 'Give him the douche,' said Dr. L. The effect of the stream was now instantaneous. Like a child who is whipped, he cried, 'I will, I will!' The douche was then stopped, and orders given that he should do the task before night."

And yet this very Dr. Leuret was the colleague of the younger Pinel, whose father, Philippe Pinel, struck the chains from about fifty insane men in 1793. But they were workers, these Frenchmen, such as would put to shame *nous autres*: "To visit in the hospitals from fifty to one hundred patients, and to prescribe for them by candle-light in the morning; then to give a lecture of an hour before breakfast; between breakfast and dinner to visit an extensive circle of patients in private practice, and perhaps attend the meeting of a medical society; after dinner (at 6 P. M.) to pass the evening in poring over professional books or in writing some original essay—such is the life of any one of the more eminent physicians of Paris."

Did space permit we might follow the Quaker Ulysses through Switzerland, Italy, Greece, Turkey and to the island of Malta, on a journey made all the more interesting by his biographer's informing commentary and foot-notes. Just when interest in the narrative begins to flag—for Mr. Sanborn does not forego the opportunity to teach here and there, and Earle himself is somewhat didactic—a lively anecdote puts us in fresh humor with the theme. For instance, Mr. Goodell (father, by the way, of the late distinguished Professor of the University of Pennsylvania) was an American missionary in Constantinople at the time of Dr. Earle's visit. Like father, like son: each loved a good story. The missionary told Dr.

Earle that a very intelligent and pious Greek lady who had been converted to Protestantism, and enjoyed the services at the missionary meetings, once remarked to him that, though she had no acquaintance with the English language, she yet liked to hear it spoken. "It sounds so finely," she said, "when uttered by those who in conversation frequently use the phrase, 'God d—n your soul,' " which the new convert seemed to have thought some form of blessing.

In 1839 Pliny Earle established himself in practice in Philadelphia. This circumstance furnishes occasion for reference to Benjamin Rush and the influence of that great physician on the practice of that day. Referring to his depleting therapeutics, Earle says: "I believe that Dr. Rush's theories are annually consigning hundreds prematurely to the grave, and hundreds more to premature insanity; while the book which inculcates them is not only extant, but probably to be found in more libraries than all other books on the same subject."

The antidotal effect of Dr. Earle's views and practice upon the baneful teaching of the great Rush in this matter proved a boon to his own and succeeding generations of practitioners and patients, although it took some alienists of that and a later day a long time to learn the wisdom of abandoning the use of tartar emetic in cases of mania.

Soon he was invited to take charge of The Friends' Retreat at Frankford, Pa., a small asylum which proved for him an excellent training school. In Philadelphia he won some esteem as a poet and a contributor to magazines, and came under the notice of Edgar A. Poe. He also had an attack of phrenology from which, however, he bravely recovered. In 1844 he took charge for five years of the Bloomingdale Asylum, New York. His biographer says of him at this period: "Seldom, indeed, do we see the child of nature and the man of the world, simplicity, experience and urbanity, so mingled as they were in him." At that time Bloomingdale contained little more than 100 patients. It had received in that period about 2150 patients, at the rate of about ninety a year; but these had been admitted 2937 times, that is, there were nearly 800 more cases than persons under treatment. Thus Dr. Earle's attention was early called to the fallacy of founding a recovery rate on *cases* rather than on *persons*.

Our biographer tells us that "the permanent recoveries were less than 34 per cent. (about one-third of all admitted), and even [why *even*?] this small proportion has not been maintained in the State of New York—and probably not elsewhere—in the half-century that has since elapsed." Further on we read, "Permanent recoveries in the mass of the New York City insane are now less than 15 per cent., and in the State at large not above 20 per cent., so that the recovery rate has greatly declined in the half-century following Dr. Earle's retirement from the Bloomingdale Asylum, which took place early in 1849." Mr. Sanborn does not say whether he believes the type of insanity has changed in that period or whether we have retrograded in care and treatment. Our own belief is that the label "recovered" was applied much more freely fifty years ago than in the present day, and very certain it is that the insane now receive

better treatment everywhere in New York than when Dr. Earle was superintendent of Bloomingdale. Mr. Sanborn quotes Dr. Earle's opinion that the great falling off was due to the increasing size of asylums, a view which he always defended with great vigor and pertinacity. We need not present the argument, a familiar enough one to our readers, in this review.

Leaving the service of Bloomingdale, Dr. Earle made a second journey to Europe in 1849. Thus was laid the foundation for his book published in 1853, "Institutions for the Insane in Prussia, Austria and Germany." Such books soon lose their practical value and it may be questioned if, nearly fifty years afterward, Dr. Earle's is now ever referred to. But it came as an exceedingly opportune publication. Then, as Mr. Sanborn tells us, but few young men went to the German universities and very little was known of the insane and their treatment in any country where German was the vernacular. Thus "a wide range was given to that natural and almost national foible of our countrymen—the fancy that we surpass all the world in enlightenment and humanity." This is the biographer's second fling at national self-complacency. Is he not a little severe, and does he not err in going to the other extreme of undue disparagement? We notice in this chapter, and elsewhere throughout the volume, a tendency to belittle American achievement, except in such places as have been made to feel the influence of Dr. Earle's presence. For instance, Dr. Earle noted at Siegburg and elsewhere that German physicians studied mental disease very thoroughly and minutely. "A consultation of all the physicians is held upon every case soon after admission and frequently afterwards"—"a custom"—thus Mr. Sanborn—"of quite recent introduction in most American asylums, if practised at all." The present reviewer knows of several hospitals in which a daily medical conference is held by the superintendent with his staff, and the practice is by no means recent. It was a hospital in Massachusetts, though not Northampton, that long ago introduced the plan as "made in Germany," and others have followed suit in other States. Mr. Sanborn means no doubt to be fair, but one regrets his *nil admirari* tone with respect to native institutions when it were apparently easy enough to say a word of encouragement where tokens of encouragement are in plain sight. Neither is this country behind Europe in "industry," although we may have been slow in some quarters to learn the lesson that Ebérbach asylum taught Dr. Earle in 1849.

We need not here go into the endless discussion of small *versus* large asylums in which Dr. Earle took so active a part and with whose position his biographer is in hearty concurrence. The argument will be found in the Memoirs for those who care to read. But we are in entire agreement with Pliny Earle when, in summarizing the argument of Dr. Zeller, of Winnenthal, in favor of separate asylums for the older incurables, he says: "With a patient who, after long residence in one establishment, has been pronounced incurable, a change of scene by his removal to another, the placing of him under the care of another physician, and all the new relations, etc., will be the most likely, of all possible means, to effect a cure."

In calling attention to what Dr. Earle learned from Germany with respect to the instruction of medical students, Mr. Sanborn says, "... yet, after the lapse of nearly fifty years, we are still as far from perfection (to use his own phrase) as the Germans were in 1849." This we think is gratuitous disparagement. There is to-day not a reputable school of medicine in the United States that does not give systematic instruction in psychiatry. According to the biographer instruction in mental maladies has not "yet been better organized anywhere in Massachusetts than in the comparatively recent Homœopathic Hospital for the Insane at Westboro . . . unless it be in the old and wealthy Worcester Hospital, where . . . instruction is given by an accomplished *Swiss* (italics ours) alienist, Dr. Adolf Meyer." We have always applauded Dr. Meyer's work at Worcester: we now congratulate him on his foreign birth, in so far as it has won him a place in Mr. Sanborn's esteem. It will be news to many that the schism of homœopathy is in the van of scientific progress in Massachusetts, but the tidings will be hailed everywhere with satisfaction as connoting ultimate death to its schismatic pretensions, likewise as a welcome harbinger of solidarity in the ranks of medicine.

The reader who desires more information anent the German asylums of half a century ago may consult the files of this Journal (which Dr. Earle aided in founding) and for which the account was published serially; better still, let him procure for his library the *Memoirs* under review, which we fear we are tapping too freely. Mr. Sanborn says truly that the work was "in advance of the times" and illustrated the paradox, "seen so often before and since, of the physician best fitted to carry on a hospital for the insane, unable to obtain preferment in his own land, before younger and less gifted but more pushing men, to whose unscientific direction many of the new and costly American asylums fell, in the decade following Dr. Earle's return from his second European tour." How the patient Quaker bided his time is told in the next chapter. He seems to have had much of the sanguine spirit of Burns mixed with that patience. One fancies him feeling, if not saying:

"O, why the deuce should I repine
And be an ill foreboder?
I'm twenty-three and five feet nine,
I'll go and be a sodger."

Again he travelled and again he cultivated himself on the social side while improving his professional opportunities in New York, Washington, Charleston and elsewhere. There are interesting reminiscences of Dr. Nichols and of men distinguished in science, literature and art, and glimpses too of the gay life of the South in *ante bellum* days. Dr. Earle seems to have had what moderns would call "a good time" wherever he chanced to be. "Some leap to the strains with unapt foot and make a halting figure in the universal dance," wrote Stevenson in "Pan's Pipes." Not so Dr. Earle, whose Quaker foot yielded gracefully to orthopædic influences, thus permitting full enjoyment of the dance with Southern belles.

His quaint, sly-dog descriptions of social events, whether it be a ball in Charleston or a cock-fight in Cuba, are delicious: "It was only a little past two when I got back to the hotel. This was our last day in Charleston. I am greatly in hopes that the quiet life, the regular hours, and the abstemious diet of my sojourn here will materially contribute to my health. If not, it is not my intention to try them again here." These Southern experiences afford his biographer admirable material for informing comment upon the great issue of that day. It is easily seen with how much zest Mr. Sanborn discusses anew the cause of Abolition and refreshing to find with how little of bitterness. The good humor of Dr. Earle has seemingly proved both contagion and antidote. What Dr. Earle and his biographer have to say about Cuba in the days of the slave-trade will be read with exceeding interest by the present generation of imperialistic readers who will note, as the well-told tale unfolds, the contrast between "the idle and gay Cuba of 1852 and the tormented and decimated Cuba of 1898." Of "things seen and heard in war" another chapter tells, among others how Drs. Nichols and Earle were associated in medical work at Washington in the Government Hospital for the Insane. Dr. Godding was there also, and very interesting is that genial friend's letter to Mr. Sanborn in which the story of that association is amiably told—facts showing simply that "my friend was human, like all the rest of us. Foibles he had, but they touch not one whit the integrity of his life or the value of his work."

"Northampton and the Curability Controversy" is in some respects the most important chapter in the work, for, as already stated, Dr. Earle's reputation as an alienist rests mainly upon the conspicuous and able part he played in that controversy. Need one thresh over the old straw? To-day all American alienists concede the impregnability of the position taken by Dr. Earle in his ruthless exposure year by year of "the traditional and deceptive modes of reporting recoveries, so as to make it appear to the public that insanity in general is a malady easily curable." The tendency now in certain quarters is to err in the other extreme. But Mr. Sanborn revels always in figures and in this chapter he may be seen in supreme revelry. To sum up the peculiar merit of Dr. Earle's whole career at Northampton in the biographer's own words it was "to destroy the value and check the parade of 'vague, general expressions' and impressions." All this, and his able championship of frugality in hospital administration, was recognized, at least in the late years of his superintendency, "in places where he had been sometimes viewed with aversion as 'one that troubleth Israel.'"

The final summing up of Dr. Earle's long and eventful life by his biographer compels admiration. It is the masterful work not only of a philosopher, but of a loving friend. Here one sees Mr. Sanborn at his best. To attempt to review this part of his book, even did considerations of space not forbid it, were for this writer a hopeless task. If the biographer has erred in placing Pliny Earle on a pinnacle higher than intrinsic merit permits or discerning posterity will sanction hereafter—and in that

act of elevation has "put down the mighty from their seat," we are willing to have him there if only in tardy recognition of the sterling worth of the man who failed, as some may think, to achieve success, as the world measures success, in full meed and whose professional career fell short of being distinguished when measured by the impartial eye of Science writ large. Be that as it may, Mr. Sanborn deserves well of every alienist of the English-speaking race for his scholarly tribute to the good man whose praises he has so sweetly sung. It is well that the reader of this Journal, which but for Pliny Earle might have died the death of inanition before it was out of its swaddling clothes, should learn from the pages of these Memoirs how much he owes to Pliny Earle, and how much likewise to Mr. Sanborn, who here gives him the opportunity to find out most pleasantly wherein that debt of gratitude consists. No *Caveat emptor* need deter him from possessing a biography the like of which, so far as the life of alienist is concerned, has not heretofore been printed in the English tongue.

G. A. B.

A Quarterly Bibliography of Psychological Literature

(Extracted, by permission, from the *Index Medicus*.)

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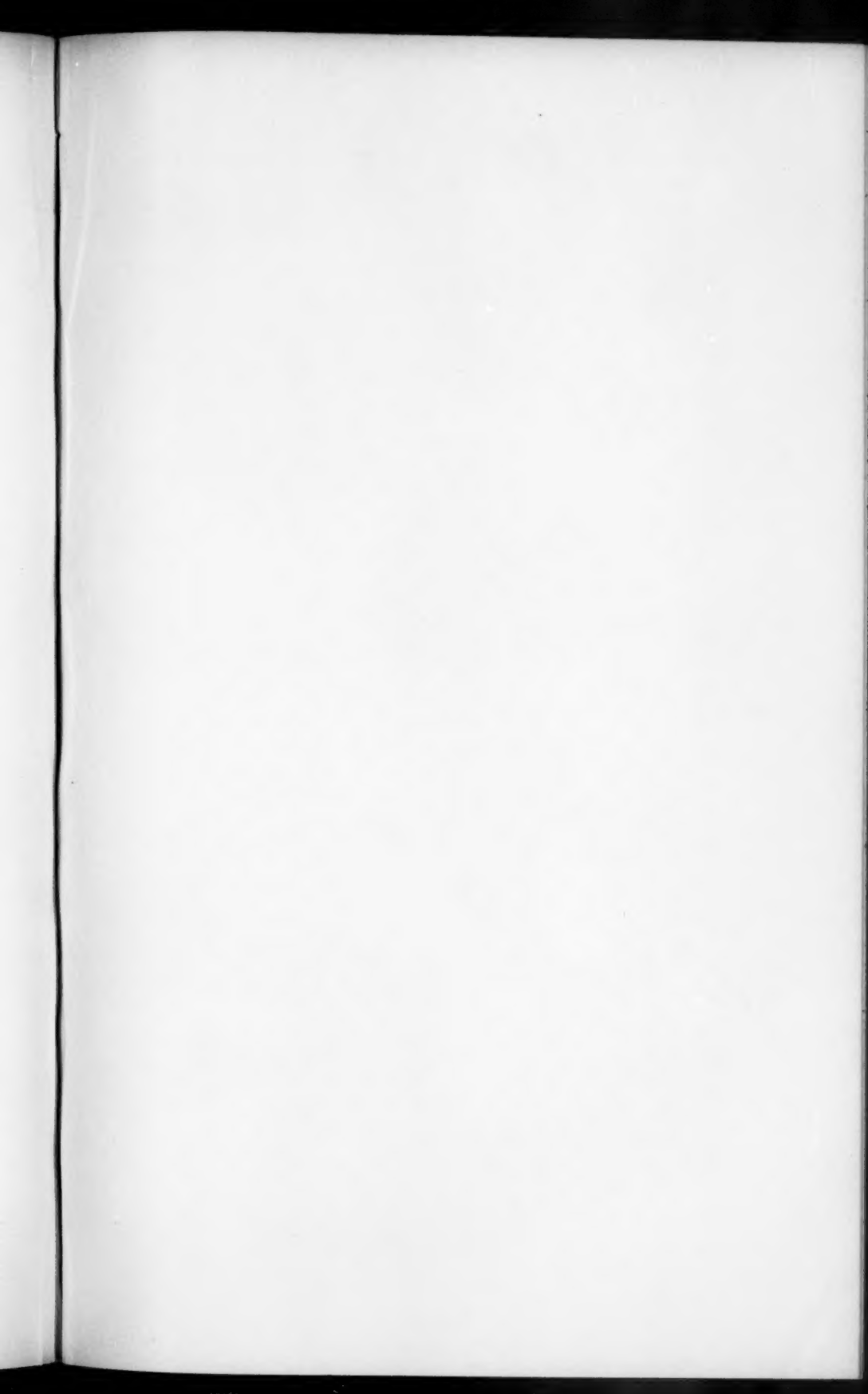
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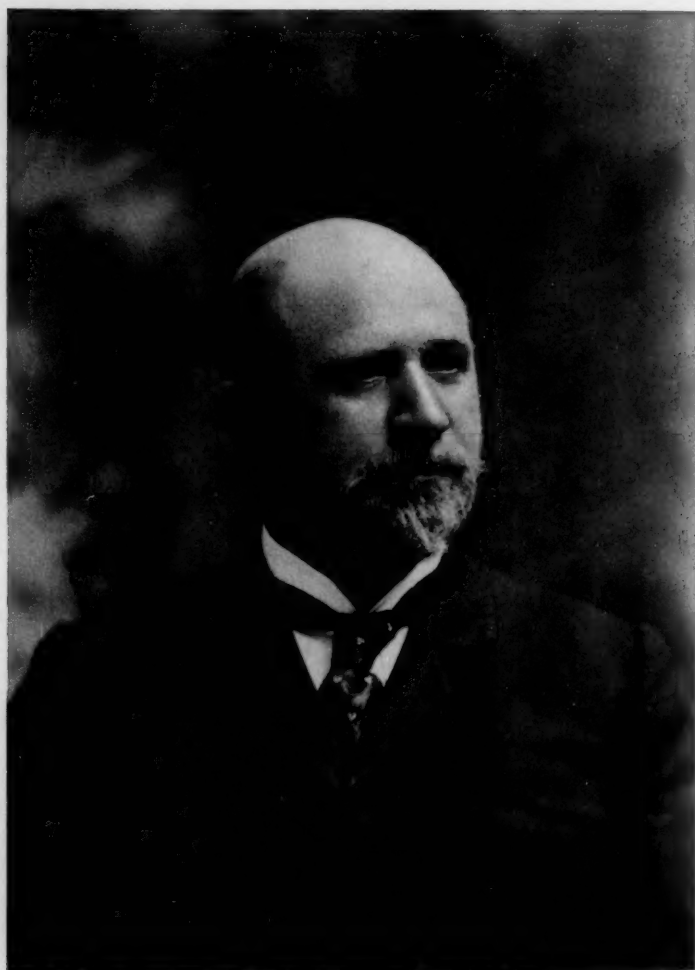
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Very truly yours,
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